



# **Food Security and Cultural Identity of Migrants in Tasmania**

by

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Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

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**September 2015**

# Declaration

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# **Statement of ethical conduct**

The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, as approved by the Human Research Ethics Committee (Tasmania) Network – Social Science, Ethics Reference No. H12622.

***Joanne Sin Wei Yeoh***

***Date 29<sup>th</sup> September 2015***

# Abstract

The notion of food security encompasses the ability of individuals, households and communities to acquire food that is healthy, sustainable, affordable, appropriate and accessible. Despite Australia's current ability to produce more food than required for its population, there is substantial evidence that many Australians struggle to feed themselves, particularly those from a culturally and linguistically diverse (CALD) backgrounds.

This study was conducted in Tasmania in response to the lack of context-specific research evidence regarding the food security issues for migrants from different cultural backgrounds living in regional area of Australia. The study was guided by five objectives: (1) to examine the views of migrants from different cultural backgrounds on food security in Tasmania; (2) to identify the food security problems facing migrants from different cultural backgrounds who live in Tasmania; (3) to explore the social and cultural capital which enhances the food security of migrants; (4) to identify the acculturation strategies used by migrants from different cultural backgrounds in relation to food security in their new environment (Tasmania); and (5) to provide some suggestions for the enhancement of food security among migrants from different cultural backgrounds.

The study employed a mixed methods design, with data collected using a questionnaire and semi-structured interviews. 600 hardcopy questionnaires were sent out to migrants living in Tasmania through the Migrant Resource Centres and ethnic community associations and the questionnaire was also available online. 301 questionnaires were returned completed (119 hardcopy and 182 online) giving a response rate of 50.2%. Follow-up semi-structured interviews were conducted with 33 migrants. The interview data underwent thematic analysis using NVivo software v10.0. In addition, descriptive and inferential statistics were used to analyse the questionnaire data using SPSS 20.0 software.

The study provided insights into the experience of food security for migrants living in a regional area of Australia (Tasmania) and the challenges that they face in relation to food availability, accessibility and affordability. Demographic variables including gender, region of origin, length of stay in Tasmania, English proficiency level and highest educational level were identified as influential factors affecting the food security of the migrants. The study provided a comprehensive understanding of the social and cultural capital used by the migrants as a means of enhancing their food security. Various acculturation strategies such as adjustment and adaption were employed by the migrants. Friends, family and community were identified as the main sources of support for the migrants to enhance their food security. Lastly, some recommendations were formulated for interested parties such as ethnic associations, government departments and non-government organisations, which would enhance the food security of migrants in their new social and cultural context.

In summary, this study delivers greater insights into the food security needs, desires and challenges that are encountered by migrants from different cultural backgrounds living in regional Australia (Tasmania), thus offering meaningful implications for other migrant communities in Australia, relevant non-government organisations and government departments that address food security issues.

# Acknowledgements

This research journey has encompassed the involvement of many individuals and groups who I wish to extend my grateful acknowledgements to. The thesis would never have been possible without them.

I have been proud to have a great supervisory team. Firstly, I would like to express my special thanks to my primary supervisor Dr Quynh Lê, for her enthusiastic and inspirational supervision. I am deeply obligated to my supervisor for her unconditional kindness and commitment. Her research skills and diligence have been greatly impressed and inspired me. Her intellectual mentoring has greatly contributed to the completion of the thesis.

Secondly, I am indebted to Dr Rosa McManamey for her constructive and insightful suggestions for my study. Additionally, Dr McManamey always encouraged and believed in me from the beginning of my research journey. Her encouragement really helped to build up and enhance my confidence and self-esteem throughout this journey.

My sincere appreciation is also expressed to Dr Thao Lê, my third supervisor, for his invaluable encouragement and support throughout this challenging yet rewarding research journey. Through the sharing of experiences from Dr Lê, I have learned different valuable research skills such as public speaking and writing skills, have greatly contributed to my academic and personal growth.

I am truly thankful to Dr Katherine Collins and Dr Hoang Boi Nguyen who helped with the proofreading of this thesis.

I would like to thank all the participants who involved in this study. Thoughts and ideas provided were a treasure which my thesis was based. Their participation was very significant to the completion of my research and I sincerely appreciate their contribution.

My deepest appreciation goes to my loving parents for their support all the way through. The strength, courage and support given by my parents have supported me to embark on and pursue this study. Without their persistent love and understanding, I would not be able to complete this study.

Finally, I would like to want to thank the administration and academic staff at the Centre for Rural Health for their great support. Special thanks to my colleagues Thao Doan, Dr Chona Hannah, Dr Ha Hoang, Dr Daniel Terry and Melissa Terry for their support. All of you have contributed to make one of the biggest achievements in my academic life.



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# Abbreviations

ABS	Australia Bureau Statistics
AIHW	Australian Institute of Health and Welfare
ASGC-RA	Australian Standard Geographic Classification – Remoteness Areas system
BDM	Bi-dimensional model
BMI	Body Mass Index
CALD	Culturally and linguistically diverse
CK	Collective Kitchens or Community Kitchens
CRH	Centre for Rural Health
Cool CAP	Cool Canteen Accreditation Program
DAFF	Department of Agriculture, Fisheries and Forestry
DHS	Department of Health Services
DHHS	Department of Health & Human Services
EWA	Eat Well Australia
EWf	Eating With Friends
FAO	Food and Agriculture Organization
FOP	Front-of-pack
HKI	Helen Keller International
HOT	Healthy Options Tasmanian
INDEPTH	International Network for the Demographic Evaluation of Populations and Their Health

LGAs	Local Government Areas
MRC	Migrant Resource Centre
NFP	National Food Plan
NOM	Net Overseas Migration
NSAP	Nutrition Strategy and Action Plan
OR	Odd ratios
PMSEIC	Prime Minister's Science, Engineering and Innovation Council
RA	Remoteness Areas
RO	Research objective
RRHA	Rural and Regional Health Australia
SA	South Australia
SIGNAL	Strategic Inter-Governmental Nutrition Alliance
SPSS	Statistical Package for the Social Sciences
TFSC	Tasmanian Food Security Council
TIS	Translating and Interpreting Service
UDM	Uni-dimensional model
UNESCO	United Nations Educational, Scientific and Cultural Organisation
US	United States of America
VHFB	Victorian Healthy Food Basket
VicHealth	Victorian Health Promotion Foundation

# **Chapter 1: Introduction**

## **1.1 Introduction**

This chapter introduces the study as a whole. First, the research background supporting this study and the contextual information which forms the foundation and rationale of this study are presented. The research objectives which specify the specific problems and issues addressed in the study are then described, followed by an overview of the methodology and ethical issues involved. Lastly, the structure of the thesis is described and the contents of each chapter summarised briefly.

## **1.2 Research background and rationale of the study**

The multicultural society of Australia is home to people from numerous cultural backgrounds from all over the world. In the last decade, there has been a progressive increase in the number of migrants resettling in Australia. The Australian Department of Immigration and Citizenship (Department of Immigration and Citizenship, 2013) reported that in June 2013 there were 237,300 migrants (Net Overseas Migration (NOM)) to Australia. In 2012 NOM contributed 60% to the total population growth of Australia, outstripping the natural increase of 40% in 2012 (Australian Bureau of Statistics, 2013a). Hence, NOM has been presented as the major contributor to population growth in Australia. NOM is forecast to increase to over 250,000 persons by 2017 (Department of Immigration and Citizenship, 2013). Among these migrant groups, Asian countries including India, China, Philippines, Vietnam, Malaysia, Korea and others, are the top contributors to NOM. The United Kingdom, New Zealand, South Africa and Nepal are also significant NOM contributors. The growth of the migrant population in Australia has prompted the government, society and communities to devote more attention to migrants' health.

There are a number of reasons why migrants are important to Australian society. Firstly, migrants have made an enormous contribution to Australia's economy. Investments made by migrants in Australia contribute to increasing Australia's



income (Department of Immigration and Citizenship, 2012). Secondly, migrants from various cultural backgrounds have greatly enhanced the dynamics of the Australian society in terms of its linguistic, social and cultural capital (Encina & Santalucia, 2010; Office of Multicultural Interests, 2012). Thirdly, migrants have fulfilled the demands of Australian workforce shortages. The significant increase in the demand for skilled workers due to the growth of the Australian economy has seen the increase of more temporary skilled workers who hold the visa subclass 457 to work temporarily in Australia (Department of Immigration and Citizenship, 2011). The development of Australia's natural resources is helped by the growth of its migrant workforce. The increasing flow of migrants into Australia has made Australian government, society and community begin to be aware of and pay attention to the health of migrants and their food in Australia. Thus, attention is also given to the food security of migrants which plays an important role in shaping their health.

The United Nations Food and Agriculture Organization defines food security as a phenomena "that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2003, p. 28). Food security is not only an issue of local concern, but a multilevel issue which can be considered at the level of the individual, household, community, regional, national and world (Power, 2005). Food availability, accessibility and utilisation are the three main pillars of food security when assessing daily food quantity and quality to ensure a satisfactory nutritious diet (Gill et al., 2003; Krishnaraj, 2005; Maxwell & Smith, 1992). In addition, food stability which refers to the stability of food availability and access over time, should be taken into consideration (FAO, 2009). Thus, food security is a part of the foundation of a healthy body and lifestyle.

When migrants settle in a new country, they face many different challenges and must adapt to a new and unfamiliar environment. The integration of the migrant population into Australian society has created social and cultural challenges, particularly in relation to the understanding of food security and health. It is common for migrants to encounter different health issues because of the

discrepancies between the culture and environment that they were brought up in and the culturally diverse environment of Australia. This issue is exacerbated in rural areas where cultural activities and awareness are limited. Additionally, a person's food choice and habits are important for maintaining their health because food, as well as acting as a fuel for the body, provides nutrients essential to the maintenance of a healthy body. Thus, attention should be given to migrants from different cultural backgrounds that bring their own food cultures and habits to Australia. However, there is no study on migrants' food security in Tasmania.

Migrants tend to use traditional foods as their core daily food and they find it difficult to alter their food habits to suit the Australian food culture (Renzaho, 2007). This practice can be seen a potential risk to migrants' health because traditional foods are not always accessible in all parts of Australia. As a result, migrants are one of the vulnerable groups of the Australian population who tend to experience food insecurity (Burns, 2004a; Rosier, 2011). They are more likely to suffer from food insecurity and be susceptible to physical diseases and psychological problems due to linguistic, cultural and religious differences or barriers caused by environmental transition. The transitional changes in culture and food have a great impact on the health of migrants in their new environment. Consequently, the health of some migrants declines the longer they stay in Australia (Rissel, 1997).

In Australia, migrants contribute significantly to the economy through investment and employment. Due to migrant population growth, it is natural that there is also growth in the supply of the kinds of food that migrants include in their normal consumption. That suggests they have the means to secure their food supply; but this can be evenly distributed as most of them live in big cities such as Sydney and Melbourne where supply of international foods are available. It is a big contrast in rural and remote areas of Australia. However, it is important to note that good supply of international foods does not necessarily represent food security. In this study, food security is achieved when the quality of food that people consume is adequate for their needs. Food insecurity is more likely to happen due to limited or

uncertain availability of nutritionally adequate and safe foods in socially acceptable ways.

According to Tasmanian Food Security Council (TFSC) (Tasmanian Food Security Council, 2012), food security is defined as the ability of individuals to acquire food that is sufficient, healthy, safe, reliable, sustainable, affordable, acceptable and accessible. Conversely, food insecurity refers to limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways. Thus, food security or food insecurity focuses on access to healthy food. On the other hand, food poverty is defined as the inability to afford or have reasonable access to food which provides a healthy diet which is more on food amount.

Food insecurity is more noticeable among migrants living in rural areas of Australia. Rural areas of Australia tend to be low socioeconomic areas with disadvantaged inhabitants. Tasmania was chosen as the research site for this study, as the socioeconomic level of most parts of Tasmania is lower compared to most parts of Australia (DHHS, 2009). It is evident that the population living in lower socioeconomic and remote areas will stand a higher likelihood of suffering from food insecurity compared to the population living in higher socioeconomic and urban areas, due to more limited healthy food choices and a lower budget to purchase healthy food (Bowman, 2006; Tsang et al., 2007). Furthermore, the price of healthy food in rural areas is usually higher than that of urban areas (Kettings et al., 2009). Another documented problem is that migrants living in rural areas suffer greater food insecurity compared to the local people because they have limited knowledge about the food culture of Australia (Hadley et al., 2007). A migrant's culture has a great influence on their food choice. Thus, it is important to examine the condition of food security for migrants in rural parts of Australia in order to improve their food security and Tasmania, specifically the rural parts of Tasmania, offer an ideal site to conduct this examination.

## **1.2.1 Theoretical background**

### **1.2.1.1 Acculturation theory**

When migrants move to a new country, they have to adapt to their new environment. This process of adaptation is addressed by the acculturation theory which explains the adoption of the values and behaviours of the surrounding culture. Acculturation is a social process where newcomers and members of the host country contact each other (Bhugra, 2004b). After resettling in a new country, migrants change their attitudes and behaviours when they have continuous contact with the host population (Abraído-Lanza et al., 2006). According to Berry's acculturative strategies (1997), integration is the best strategy where people maintain their cultural identity while interacting with the host society. Migrants with different cultural backgrounds will bring different cultural practices to the new environment which may not be accepted by the local population. Thus, they need to acculturate themselves to the new culture, adapt to the new country and find a way to engage with the new environment (Longhurst et al., 2009).

### **1.2.1.2 Cultural and social capitals**

Cultural and social capital play important roles in influencing the food security of migrants. Cultural capital refers to the forms of knowledge, skills, education, and advantage that a person has, which gives them a higher status in society (Bourdieu, 1986). Specifically, Bourdieu (1986) defined cultural capital as the competence of an individual in a high status culture. Cultural capital is determined by level of education. When a person is equipped with a wide range of knowledge, skills and ability they are more likely to succeed in society. In this study, cultural capital will affect the way migrants adapt to their life in the new setting. Cultural capital, such as the way migrants access food or prepare food in their host country, has a significant influence on the food security of migrants (Bourdieu, 1986; Throsby, 2003). As cultural capital is learnt over a lifetime, it is impossible for migrants to change their culture and adapt to the new culture in a short time. Furthermore, migrants tend to retain their traditional food habits including cooking skills (Kruger et al., 2012). Therefore, knowledge about diet and nutrition can contribute to

improving the food security of migrants and their adaptation to the new food culture in a shorter time.

Social capital refers to the social networks and relationships that exist within communities. Social capital is generated through social processes between the family and wider society. Family is the fundamental unit of social capital. The sense of belonging and trustworthiness that builds up in the social network benefits people in the community and makes life easier. Social capital provides support and benefits through its networks (Putnam, 1995). Social strategies such as sharing resources within the community are a common practice to cope with a food deficit and help prevent food insecurity (Campbell, 1991). Moreover, social capital can be better utilised and lead to more positive effects when the network size increases (Hawe & Shiell, 2000). There is a significant relationship between the possession of social capital and better health (Putnam, 2001; Smith & Morton, 2009). By joining clubs, organisations or groups, people will be happier and their sense of well-being will be improved. In addition, social capital is positively associated with food security whereby those who exhibit higher levels of social capital are less likely to experience hunger. People can help each other and improve food security by sharing the food in the community or giving food to the needy (Fieldhouse & Thompson, 2012). A good example is community gardening, where a group of people work together to grow food (Carney et al., 2012; Kortright, 2011). Community gardens, as well as providing food, also form social networks which contribute to bonding and life sharing between members.

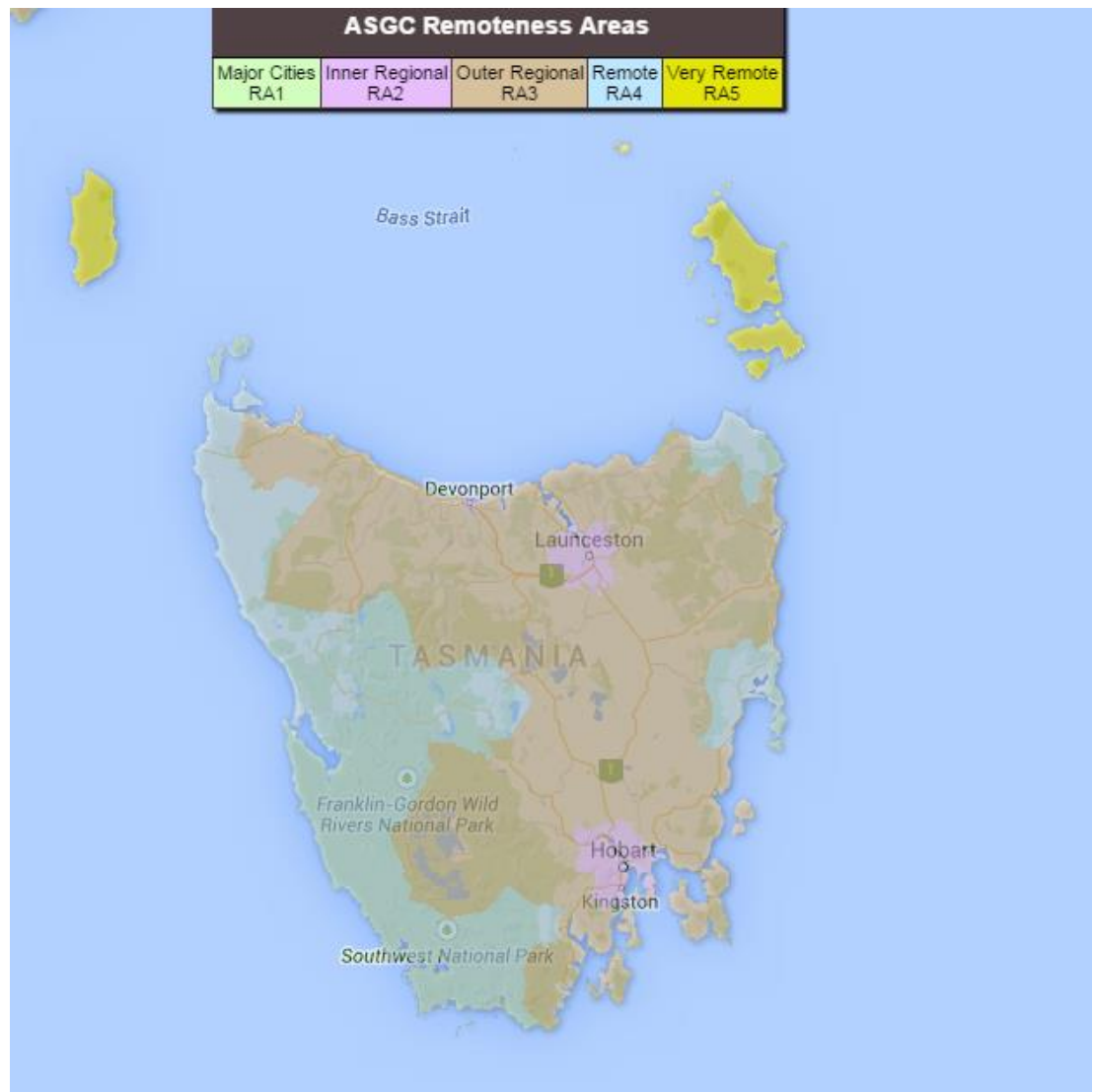
## **1.2.2 Contextual background**

### **1.2.2.1 The rural context**

There are several different classification systems in Australia which have been developed to define rurality and remoteness. This study is located in Tasmania and it is therefore important to understand the concepts of remoteness and rurality in Australia, as well as in relation to Tasmania. In order to distinguish between urban and rural areas in Australia, this study employed the geographical classification developed by the Australia Bureau Statistics (ABS), namely the Australian Standard

Geographic Classification – Remoteness Areas system (ASGC-RA) (Australian Bureau of Statistics, 2012c). The classification allocates one of five remoteness categories to areas depending on the distance from urban centres, where the population size of the urban centre is considered to govern the range and types of services available (Australian Bureau of Statistics, 2003). ASGC-RA is based on 2006 Census data, and classifies data from census collection districts into broad geographical categories called Remoteness Areas (RA's). The RA categories are defined in terms of the physical distance of the location from the nearest urban centre (i.e., access to goods and services) based on population size. There are five RA categories under the ASGC-RA system: major cities (RA1), inner regional (RA2), outer regional (RA3), remote (RA4) and very remote (RA5).

According to Rural and Regional Health Australia (RRHA) (2012) in the National Strategic Framework for Rural and Remote Health, the term 'rural and remote' is used to encompass all areas outside Australia's major cities. This includes areas that are classified as Inner and Outer Regional (RA2 and RA3) and Remote or Very Remote (RA4 and RA5) under the ASGC-RA system (Rural and Regional Health Australia, 2012, p. 5). As shown in Figure 1.1 overleaf, the major population centres of Hobart, Launceston and Devonport are classified RA2 (inner regional), while the remainder of the state is RA3 (outer regional), RA4 (remote) and RA5 (very remote).



**Figure 1.1: ASGC-RA remoteness area classification for Tasmania (Department of Health, 2015)**

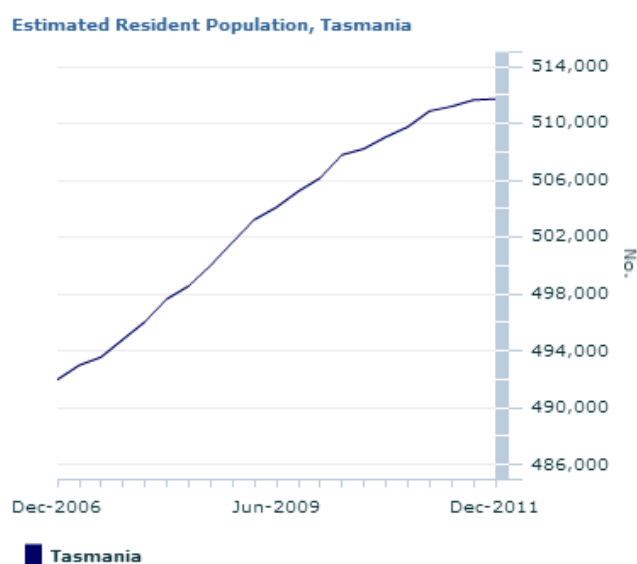
### 1.2.2.2 Characteristics of Tasmania

Tasmania is an island state south of mainland Australia (Figure 1.2 overleaf). The population growth of Tasmania remains the slowest of all states and territories, with a 0.4% annual growth rate in 2011 (Australian Bureau of Statistics, 2012b). On 31 December 2011 the estimated resident population of Tasmania was 511,700, an increase of approximately 2,000 (0.4%) over the previous year (Australian Bureau of Statistics, 2012b). The estimated resident population of Tasmania from 2006 to 2011 is illustrated in Figure 1.3 (overleaf). According to the 2011 Census(2015), people overseas born were from: North-West Europe (6.1%), Oceania and

Antarctica (1.1%), South-East Asia (0.9%), Southern and Eastern Europe (0.8%) and others region.



**Figure 1.2: Location of Tasmania (Department of Immigration and Border Protection, 2013)**



**Figure 1.3: Estimated resident population of Tasmania, 2006-2011 (Australian Bureau of Statistics, 2012b)**

There are two main issues to be concerned in relation to living in Tasmania. Firstly, the geographical location is considered to be one of the factors affecting food security in Tasmania. People living in regional or remote areas are more likely to



experience food insecurity than those living in major cities (Australian Institute of Health and Welfare, 2008). As recommended by *The Australian Guide to Healthy Eating* (Department of Health, 2014), two serves of fruit and five of vegetables should be consumed per day to promote good nutrition and health. However, people living in regional or remote areas are reported to be significantly less likely to consume the recommended two serves of fruit per day (Australian Institute of Health and Welfare, 2008). As a consequence, obesity is particularly prevalent among people living in rural and remote areas (National Rural Health Alliance, 2013). In addition, the availability and quality of fresh fruit and vegetables decreases with remoteness (Australian Institute of Health and Welfare, 2012). The food supply in rural areas is likely to be less than in major cities in terms of variety and quality. Furthermore, the cost of food, especially healthy food, is higher in rural areas because of transport costs. This has the result that people living in rural areas with low incomes find it hard to maintain healthy diets (Queensland Health & Queensland Treasury, 2012).

The second issue affecting food security is socioeconomic status. In terms of household income, Tasmania has been reported as having the lowest levels of wealth among households in Australia (Australian Bureau of Statistics, 2013c). Tasmania therefore has higher levels of disadvantage than other states. There is evidence of a strong association between income and the prevalence of food insecurity (Hughes et al., 2011; Rutishauser et al., 2001). Constant lack of money restricts the purchase (in terms of both quantity and quality) of food such as fruit and vegetables. For this reason, a high proportion of low-income earners in Tasmania have a high risk of food insecurity (Australian Institute of Health and Welfare, 2012; Ward, Williams, et al., 2013) even though they tend to spend a larger proportion of their income on food than higher income households (Burns, 2004b).

This study seeks to understand the perceptions, behaviours and attitudes to food security held by migrants living in rural areas of Tasmania against these theoretical and contextual backgrounds. This study identifies the food security barriers faced by migrants, and evaluates the strategies migrants have when handling food in their

new setting and the experiences they have had regarding food security in Tasmania. By examining the experiences of migrants and their perceptions about food security, the outcomes of the study will provide insights or guidance not only for all migrants in Tasmania, but also for various private organisations and relevant government departments. It is hoped that the outcomes of the study will enhance the understanding of the food security and health conditions of migrants and aid in the formulation of more effective support and policy practices.

### **1.3 Research aim and objectives**

On the basis of the research background and with the goal of improving the food security of migrants in Tasmania, this study was conducted with the aim of investigating the perceptions and experiences of food security held by migrants in Tasmania. Five research objectives were developed in order to achieve the research aim. A research objective is a “more specific description of what the various stages and/or components of the research being designed to achieve” (Bruce et al., 2008, p. 132). The five research objectives are listed below:

**Research objective 1:** To examine the views of migrants from different cultural backgrounds on food security in Tasmania.

Research questions:

- What are the views of migrants with different cultural backgrounds towards food security?
- How do migrants from different cultural backgrounds perceive ‘food security’ in this host environment?
- How do the cultural backgrounds of migrants influence their perceptions on food security?

**Research objective 2:** To identify the food security problems facing migrants from different cultural backgrounds who live in Tasmania.

Research question:

- What are the problems that migrants from different cultural backgrounds face regarding food security when they live in Tasmania?

**Research objective 3:** To explore the social and cultural capital which enhances the food security of migrants.

Research questions:

- How does social capital (social network, communities, social supports and others) help in enhancing the access and utilisation of food by migrants?
- How does cultural capital (form of knowledge: education, skills) help in enhancing the access and utilisation of food by migrants?

**Research objective 4:** To identify the acculturation strategies used by migrants from different cultural backgrounds in relation to food security in their new environment (Tasmania).

Research question:

- What are the strategies used by migrants with different cultural backgrounds in accessing and utilising food in their new environment?

**Research objective 5:** To provide some suggestions for the enhancement of food security among migrants from different cultural backgrounds.

Research question:

- In what way could the food security of migrants be improved?

## **1.4 Overview of the methodology**

The study employs a mixed methods design which consists of quantitative and qualitative methods to achieve the research objectives as well as the research aim. The study investigates the food security experiences of migrants and identifies the factors that influence food security and any acculturation strategies used by the

migrants. The study also aims to provide an understanding of the perceptions of migrants and their insights regarding food security in relation to their health. Hence, both quantitative and qualitative approaches were used in the study. A quantitative approach was used to gather statistical data through a survey questionnaire. To enrich the data collected from the survey, a qualitative approach was taken using semi-structured interviews. A concurrent triangulation mixed methods design was also used. Concurrent triangulation design is specified as “a one-phase design in which researchers implement the quantitative and qualitative methods during the same timeframe and with equal weight” (Creswell & Plano Clark, 2007, pp. 63-64). In this study, the quantitative and qualitative data were collected and analysed concurrently but separately, then the results of both data sets were integrated during the interpretation and discussion phase.

#### **1.4.1 Quantitative stage**

In the quantitative data collection process, prior to the full implementation of the questionnaire, a pilot study was conducted with the assistance of three experts in this field and pre-testing of the questionnaire was trialled with 20 respondents. The reliability of 11 scale questions in the questionnaire was tested using Cronbach’s alpha. The final version of the survey questionnaire was distributed to 600 migrants with the assistance of the Migrant Resource Centres and ethnic associations in Tasmania. There were 301 returned questionnaires which represented a response rate of 50.2%.

The questionnaire comprised 49 questions divided into five parts: A, B, C, D and E. Part A collected demographic information about the participant including gender, age group, region of origin, English proficiency level and others. Part B focused on the experiences of food security by migrants in Tasmania; which covered food availability, accessibility, affordability and consumption. Part C examined the views of migrants on food security in Tasmania; while part D investigated the attitudes and coping strategies of migrants regarding food security. Part E invited participants to provide suggestions for ways to improve food security in Tasmania in order to provide more valuable qualitative data.

The study employed both descriptive and inferential statistics to analyse the quantitative data with the use of SPSS version 20. Initially, descriptive statistics provided information such as the distribution and frequency of responses within each category of the variables (Munro, 2005). Chi-square ( $\chi^2$ ) tests were employed in the study to evaluate the relationship between variables and to test whether the socio-demographic factors including gender, region of origin, length stay in Tasmania, marital status (independent variables) were related to each of the Likert-scale outcome variables such as the experiences and views of migrants on their food security in Tasmania (dependent or outcome variables). If the Chi-square assumptions were violated (i.e., more than 20% of expected cells are less than 5), a Fisher's exact test was used. When the number of cells with the expected number of counts of less than 5 exceeds 20%, the frequency table needed to be reorganised by merging the columns or rows to meet the requirement. The Chi-square ( $\chi^2$ ) tests only demonstrate an association. They do not provide a measure of the strength of the association between the variables or the nature of the differences between the groups (Munro, 2005; Pallant, 2013). Those factors that were indicated to be significant ( $p$  values  $\leq 0.05$ ) underwent ordinal logistic regression using the GENLIN procedure. Overall, the test of significance between variables, odds ratios (OR) and 95% confidence intervals were calculated.

#### **1.4.2 Qualitative stage**

Semi-structured interviews were conducted with 33 migrants to Tasmania from different cultural backgrounds. The interviews sought to obtain in-depth information from participants about their perceptions and experiences of food security and their association of this with any health issues. The interview questions were trialled with five participants to ensure their appropriateness and suitability. Alteration of the interview questions was made before the interview to ease the interview process. Qualitative data were sourced from open-ended sections of the questionnaires and individual interviews. Qualitative data were analysed through thematic analysis with the use of NVivo 10 software. Thematic analysis was used to identify recurring themes, patterns of living, behaviours and experiences which then

became a description of the phenomenon within the data (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006).

## **1.5 Ethical issues**

This study involves human subjects and therefore an awareness of the ethical issues involved is required. Essential steps were taken to ensure that participants clearly understood the aims of the study before taking part and that participants agreed to participate in the study on their own free will (Cohen et al., 2007). The target participants of this study (migrants) come from diverse cultural backgrounds with different races, ethnicity, religions and spiritual beliefs. The participants were assured of the full privacy and confidentiality of all the information they provided. Ethical issues were carefully considered to protect the rights, beliefs and perceptions of the migrant participants.

In addition, attention was given to the private and personal information involved in this study. Thus, all materials and information collected from participants remained anonymous. All raw data were and will be kept secure at the University of Tasmania premises of the Centre for Rural Health for a period of at least five years. The data will be destroyed after five years. Participants were provided with information and consent forms to enable them to understand the purpose of the study before taking part in the data collection process. They were made aware of their right to withdraw from the study at any stage. According to Cohen et al. (2007), the decisions is entirely that of the participant whether to become involved or not, and when to withdraw from the research. To conduct this study, ethics approval (H0012622) was obtained from the University of Tasmania's Social Sciences Ethics Committee (see Appendix 1).

## **1.6 Limitations of the research**

Some potential limitations might have influenced the findings of this study. One of the potential limitations was that the Migrant Resource Centre (MRC) that was located in Devonport and Burnie had recently closed and had been replaced by the MRC North West Mobile Outreach Service, operating from the Northern Tasmania Migrant Resource Centre (Launceston). Unfortunately, during the data collection

period there was no officer-in-charge for the North West area. This presented a real challenge to the study in the collection of responses from the North West area. Thus, the responses from migrants from the North West of Tasmania were limited.

Due to time and financial constraints, the study was conducted cross-sectionally rather than longitudinally. This may have limited the understanding of the acculturation process and prevented the determination of causal relationships among variables.

## **1.7 Structure of the thesis**

There are seven chapters. An overview of each chapter is given below:

- **Chapter 1: Introduction**

The aim and objectives of the study. The background and structure of the study.

- **Chapter 2: Literature review**

A review of the relevant literature and existing research in relation to the research field. The concept of food security, the factors that influence food security and the strategies used to improve food security are discussed. The theoretical framework on acculturation and capital (including cultural and social capital) underlying food security are also reviewed.

- **Chapter 3: Methodology**

A detailed explanation of the methodology used. The research design, research approach, data collection and data analysis are discussed. The reliability and validity of the data are also highlighted in this chapter and any relevant ethical issues are discussed.

- **Chapter 4: Quantitative data analysis**

The quantitative data analysis process is described and the results gathered from the questionnaire are reported.

- **Chapter 5: Qualitative data analysis**

The detailed procedures of the qualitative data analysis process are recorded and the results obtained from the semi-structured interviews with 33 migrants are presented.

- **Chapter 6: Discussion**

A discussion of the integration of the results that emerged from both the quantitative and qualitative analysis. Significant findings are provided by interpreting and combining the data analysis results.

- **Chapter 7: Conclusion**

An overview of the entire research journey. A discussion of the significance of the findings from the study, as well as a few suggestions for further research.

## **1.8 Conclusion**

This chapter provides an overview of the thesis and its associated research project. The research background is presented with a brief introduction to the migrant population of Australia and its contributions to Australia. A brief discussion of the relevant issues in relation to the food security and health of migrants is then presented. This is followed by the introduction of the research aim and objectives and an overview of the research methodology used in the study. The significance of this study is also discussed touching on some important issues of ethical consideration. The following chapter is a review of the literature and the existing research works in order to establish a solid theoretical foundation and reference for this study.



# Chapter 2: Literature Review

## 2.1 Introduction

A literature review is a systematic summary of completed and recorded works such as journal articles, books and other documents that identify, evaluate and interpret scholarly research by researchers, scholars and practitioners (Cooper, 1988; Creswell, 2005; Fink, 2014; Marshall, 2010). According to Crowley (2007), the role of a literature review can be summarised into four aspects: structural, contextual, inspirational and operational. A literature review provides the theoretical and methodological background for a study, integrates the findings of the study with the body of knowledge and convinces others by using literature as evidence (Creswell, 2005). It also helps to form a conceptual framework related to the research aims and objectives of a study.

In this chapter, the literature relevant to the research aims and objectives of this study was reviewed. The study aims to investigate the perceptions and experiences of migrants relating to food security in Tasmania. Literature on the following areas was reviewed:

- The concepts *food security*, *migrant* and *rural*, and their interrelatedness;
- The factors influencing food security;
- The strategies used to achieve food security; and
- Acculturation theory and the cultural and social capital underlying food security.

The theoretical concept of acculturation was examined to establish a theoretical foundation for this study.

## 2.2 Methods of literature review

A literature review was conducted to identify the challenges facing migrants in terms of food security in Australia and other host countries. It also reviewed the policies closely related to food security and the strategies utilised by vulnerable groups to combat food insecurity. In addition, the theoretical background of

acculturation, and cultural and social capital were examined. In order to offer a solid theoretical and scientific background for the current study, research studies which are related to these themes were reported and are discussed in this chapter. Gaps in the field are also identified to strengthen the significance and purposefulness of the current study.

A comprehensive literature search was conducted using *Google Scholar* and *Summon Search* through the library at the University of Tasmania for generic literature related to the topic of interest. In addition, the electronic databases and academic search engines *PubMed*, *MEDLINE*, *SCOPUS*, *Informit Health Collection*, *ProQuest Health* and *Medical Complete and Web of Knowledge*, (including *Web of Science*), were used for a thorough search to obtain the relevant journal articles relating to the topic of interest. Subsequently, key word searches, which included *food security*, *migrants*, and *acculturation strategies*, were used to identify relevant articles. Then, the reference lists of these identified articles were manually scanned to filter out other studies which were not captured in the databases. Furthermore, keyword searches through government departments, organisations and stakeholders by accessing relevant databases such as the Australian Bureau of Statistics (ABS) were conducted. These searches also accessed grey literature, such as government and stakeholder reports, proceedings and policy documents. These sources were important to provide a better understanding of the subject matter.

Only primary research studies which were originally published in English were selected for the review. The literature search process covered the depth and breadth of the related literature as well as positioning the areas of expertise in an effective way.

The literature review includes published documents from 1936 to 2014. Throughout the three-year study period (2012-2015), at three to six monthly intervals searches and reviews of the relevant literature were conducted to ensure the latest issues were being included and discussed. Researches examining food security were observed in Appendix 4.

## 2.3 The concept of food security

### 2.3.1 Definition of food security

Food is the essential need of every living creature. Every human needs to consume food in order to gain energy and maintain health. As stated in the 1948 *Universal Declaration of Human Rights* (United Nations, 1949), everyone has the right to a proper life, including food, clothing, housing, medical care and social services. However, in reality many people suffer from hunger, malnourishment and food insecurity, especially those in developing countries.

The concept of food security has been examined over the years and has changed with time. The range of food security definitions is broad. There are about 200 definitions for food security in published writing (Maxwell & Smith, 1992). Table 2.1 (overleaf) presents a chronological summary of the definitions of food security over time. Initially, the focus was on the volume and stability of food supplies, as well as the stability of food prices as defined by the Food and Agriculture Organization of the United Nations (FAO) at the 1974 World Food Summit. In 1983, the definition was expanded to include secure food supplies, access by vulnerable groups and to ensure a balance between food demand and supply. In 1986, influenced by the World Bank report *Poverty and Hunger*, the definition of food security was expanded further to become “access by all people at all times to enough food for an active, healthy life” (World Bank, 1986, p. 1). Both the 1983 and 1986 definitions have the same aim: to ensure that people have a sufficient food supply to support their lives at all times. Over the years, the definition of food security was modified to form a more complex and precise definition. At the 1996 World Food Summit, an organising framework for food security was formed. Food security was defined as essential for all humans, not only in terms of food quantity, but also food quality, to ensure they are fulfilling their dietary needs and are staying healthy and active. The definition was modified again in *The State of Food Insecurity 2001*. This new definition focused more on consumption, demand and the issue of access to food by vulnerable groups. Among all the definitions, this definition (FAO, 2001) is most widely used.

**Table 2.1: Definitions of food security over time**

Author/time	Definition
<b>United Nation (1975)</b>	Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.
<b>FAO (1983)</b>	Ensuring that all people at all times have both physical and economic access to the basic food that they need.
<b>World Bank (1986)</b>	Food security is the access of all people at all times to enough food for an active, healthy life.
<b>Anderson (1990)</b>	Food security means access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).
<b>FAO (1996)</b>	Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.
<b>FAO (2001)</b>	Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

As stated above, food security refers to the availability of healthy, affordable food and the capacity of individuals and communities to access this over the long term at local, national and global levels. Other than the official FAO definition (FAO, 2001), there are varied definitions of food security which are similar in essence. The term *food security* has been modified to accommodate its importance to a nation.

Different nations have modified and formed their own statements to fit the objectives and targets of food security in their countries. In the United States (US), food security is defined as “access by all people at all times to enough food for an active, healthy life and at a minimum includes the ready availability of nutritionally adequate and safe foods and the assured ability to acquire personally acceptable foods in a socially acceptable way” (Anderson, 1990, p. 1575). This definition of

food security is broadened to include personally acceptable foods or food preferences based on an individual's cultural identity.

In Australia the Victorian Health Promotion Foundation focuses on healthy and secure food among people with different cultural backgrounds and in this context, defines food security as existing when people can access safe, nutritionally adequate, culturally acceptable food from non-emergency sources (VicHealth, 2011). In Tasmania the Tasmanian Food Security Council (TFSC) states that in order to achieve food security individuals, households and communities must have the ability to acquire food that is sufficient, healthy, safe, reliable, sustainable, affordable, acceptable and accessible (Tasmanian Food Security Council, 2012). In order to ensure food security, sufficient nutritious or healthy food at a reasonable price should be available and accessible for all Tasmanians. Smit (2011) from The Food Alliance of Tasmania indicated that to obtain food security, all Australians should have access to sufficient, nutritious, safe and healthy food for their wellbeing now and in the future.

In this study, the TFSC definition of food security is applied as the basis of the study. Food security is therefore defined as the ability of individuals to acquire food that is sufficient, healthy, safe, reliable, sustainable, affordable, acceptable and accessible. This definition is treated as the foundation from which to focus on the food security of migrants living in Tasmania.

### **2.3.2 The four components of food security**

There are four components of food security: food availability, food accessibility, food utilisation and food stability (FAO, 2005, 2006; Gill et al., 2003; Krishnaraj, 2005; Maxwell & Smith, 1992; Radermacher et al., 2010).

#### **2.3.2.1 Food availability**

Food availability refers to sufficient quantities of quality food supplied domestically or through imports (FAO, 2008). Food supply impacts individuals, households or entire populations. Hence, in order to ensure the availability of food stock and to meet the required food security level, it is important to examine the determinants of food availability (level of food production, stock levels and net trade). People

should have sufficient food to avoid hunger and malnutrition, which is the primary requirement of food security. Food is not considered secure if there is only an adequate food supply for current consumption. Food should be available in the long term or on a periodic basis. Factors that may have an impact on food availability are adverse weather conditions, political instability or economic factors such as unemployment and rising food prices (Agriwaterpedia, 2014; FAO, 2006).

Food supply is also influenced by factors such as the location of food outlets, food price, food quality and food variety (Tasmanian Food Security Council, 2012). The location of food outlets, such as supermarkets and food retail stores, is a key feature of a local food supply. Food security among disadvantaged groups is dependent on their accessibility to food outlets that provide a diverse range of affordable foods. The design and layout of housing, residential areas and locations of retail food outlets have an impact on food supply and accessibility at the local level.

Food price is one of the key features of food availability that has a significant impact on people with a low socioeconomic status (Brinkman et al., 2010). Food security is improved when there is sufficient affordable fresh fruit and vegetables. In addition, the food supply needs to meet acceptable standards of quality and freshness. Food quality is often related to its nutritional value, as well as its price. Food security is also best achieved when a nutritious diet is sourced from a wide range of food choices that include both fresh and processed products.

#### **2.3.2.2 Food accessibility**

Food accessibility refers to the resources and capabilities of communities, households and individuals to acquire and use appropriate food for a healthy and nutritious diet (IICA, 2009). An adequate supply of food does not guarantee food security. Some disadvantaged groups or individuals may not be able to acquire and consume a healthy diet even though there are foods available. Thus, the issues of inadequate food access emerge. The following aspects must be considered when examining whether a population has access to a complete nutritious daily diet:

financial resources, expenditure, markets and prices (FAO, 2008), distance and transport to food outlets, storage facilities, time and mobility.

Physical access to food includes the distance and method of transport to food outlets, especially supermarkets where food tends to be cheaper than local stores. This is often a concern for people living in remote and isolated areas where the food sources are situated some distance from their homes (Harrison et al., 2010; Palermo et al., 2008). Furthermore, difficulties in reaching the better quality and cheaper food stores due to a lack of private transport options or public transport access issues, are likely obstacles for people wanting to access an affordable healthy diet (Harrison et al., 2010).

Economic access to food is determined by the amount of money that a household or individual has available to purchase good quality food for a healthy diet. Social support from friends, families, neighbours or communities also contributes to food security. Social support networks can assist with food or money during periods of food insecurity, for example sharing the costs of food, as well as the time in shopping and food preparation. Lacking time to go shopping or prepare meals can limit access to healthy diets, especially for households where all adults work full-time (Tasmanian Food Security Council, 2012). As a result, these households rely to a greater extent on ready-made, over-processed or take-away foods that are high in fat, salt and low in fibre, which is characteristic of unhealthy diets. Poor physical mobility, often experienced by people with disabilities or the elderly, also restricts people's ability to shop for and prepare food.

### **2.3.2.3 Food utilisation**

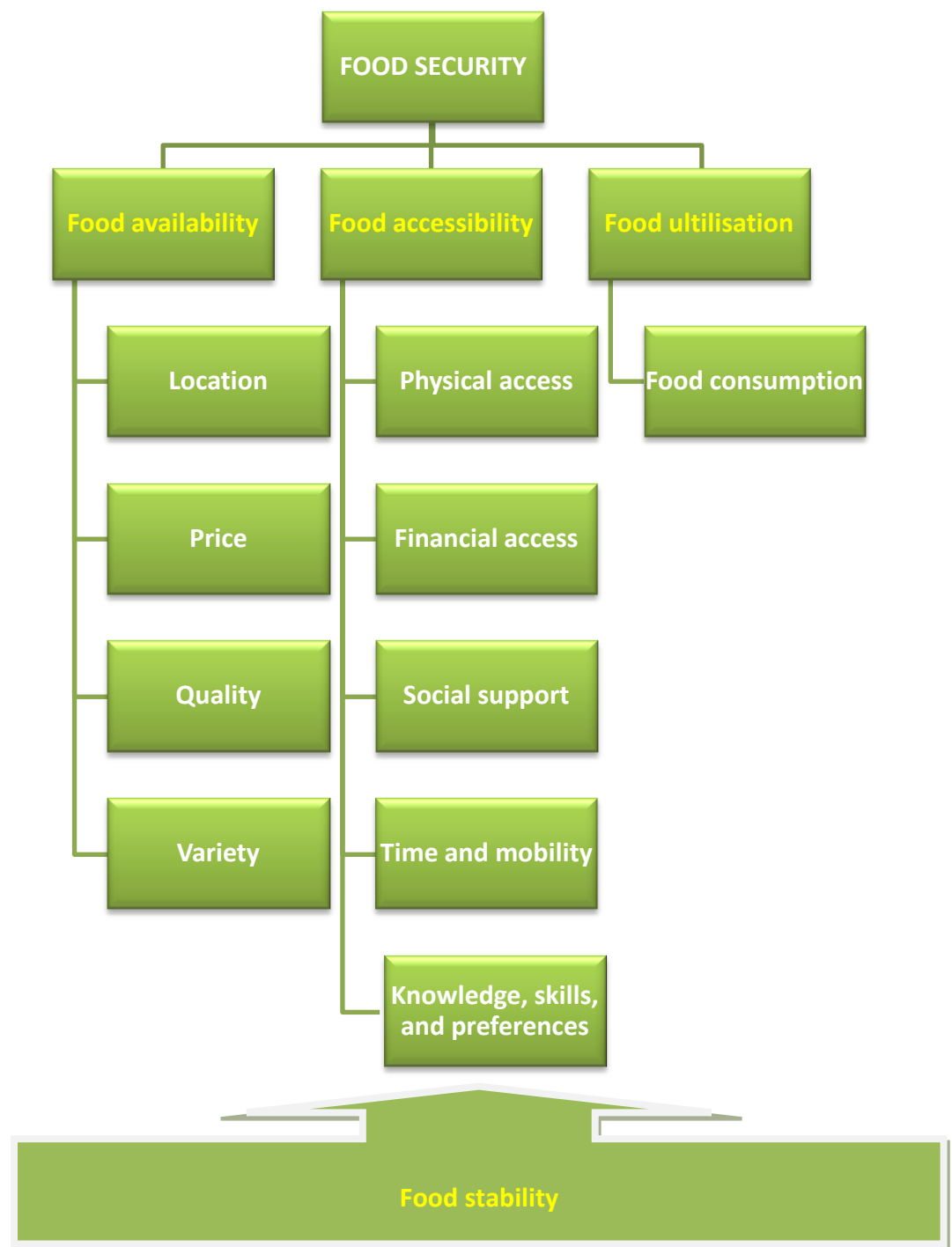
Food utilisation concerns the consumption of food through an adequate diet, which can help an individual to reach a state of nutritional wellbeing. Clean water, sanitation and health care also affect an individual's ability to reach a state of nutritional wellbeing through an adequate diet. Food utilisation also simply refers to the capabilities of individuals to absorb and use the nutrients in the food that they consume. Food utilisation is realised when food is used and processed correctly, storage facilities are well-prepared, there is adequate knowledge of basic food

nutrition and child care techniques, and health and sanitation services exist (United States Agency for International Development, 1992). The beliefs, practices, eating habits, hygiene standards, sanitation arrangements and the general health of a person are determinants in food utilisation and should be taken into consideration. Good care and feeding practices, food preparation practices, diet diversity and intra-household distribution of food are also important considerations (FAO, 2008). Food utilisation is influenced by the knowledge, skills and preferences of the food consumer; the safety, preparation and cooking facilities of the food and social support (Tasmanian Food Security Council, 2012). To assist individuals to achieve food security they must be equipped with knowledge about local food and food nutrition, food handling methods, food preparation and should have some social networks.

#### **2.3.2.4 Food stability**

All components of food security are interconnected and come together to form food security at the local, nation and global levels. Furthermore, the stability of the three components (food availability, accessibility and utilisation) should be taken into consideration (FAO, 2008). Food stability refers to the stability of food availability and access over time (FAO, 2009). To be food secure, a population, household or individual must have access to adequate food at all times. This includes food, income and economic resources. Adverse weather conditions, political instability, or economic factors including unemployment and rising food prices may have an impact on food security status. As indicated in the definition of food security, food security is not only about the quantity of food, but also the quality of food which includes the macronutrients and micronutrients that contribute to physical health and wellbeing and offer protection from diseases (Barrett, 2002; Krishnaraj, 2005). Hence, both the quantity and quality of food should be well managed to pursue food security. Figure 2.1 presents the four-pillar framework of food security.





**Figure 2.1:** Four components of food security, adapted and modified from the literature (Barrett, 2010; FAO, 2008; IICA, 2009; Rychetnik et al., 2003)

### 2.3.3 Food insecurity

#### 2.3.3.1 Definition of food insecurity

Food insecurity occurs if one or more of these four components of food security (or their sub-components as shown in Figure 2.1) do not exist for an individual or

household (for example, cutting the size of meals or skipping meals due to household budget constraints is a financial access and food accessibility problem). As previously noted, the term food “security” is used to refer to its generic sense including some aspects of food insecurity. However, the term “food insecurity” is used either as a contrast to food security or specifically refers to some degree of lack of food security in its generic sense.”

Food insecurity is limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways (Anderson, 1990). Food insecurity occurs when there is a lack of food or limited food in a household. Food insecurity refers to a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and active, healthy lives (FAO, 2001). Anderson (1990) also conceptualised food insecurity as the loss of the ability to acquire acceptable foods in socially acceptable ways, or a limited or uncertain food resource. This situation may be caused by the unavailability of food, insufficient purchasing power or the inappropriate distribution or inadequate use of food at the household level (FAO, 2008). Individuals may have uncertain access to adequate and appropriate foods (Barrett, 2002). Thus, food insecurity occurs when people do not have sufficient food; experience hunger as a result of running out of food and not being able to afford more; have a poor quality diet as a result of limited food options; develop an anxiety about acquiring food; and have to rely on food relief (Champagne et al., 2007; Tasmanian Food Security Council, 2012).

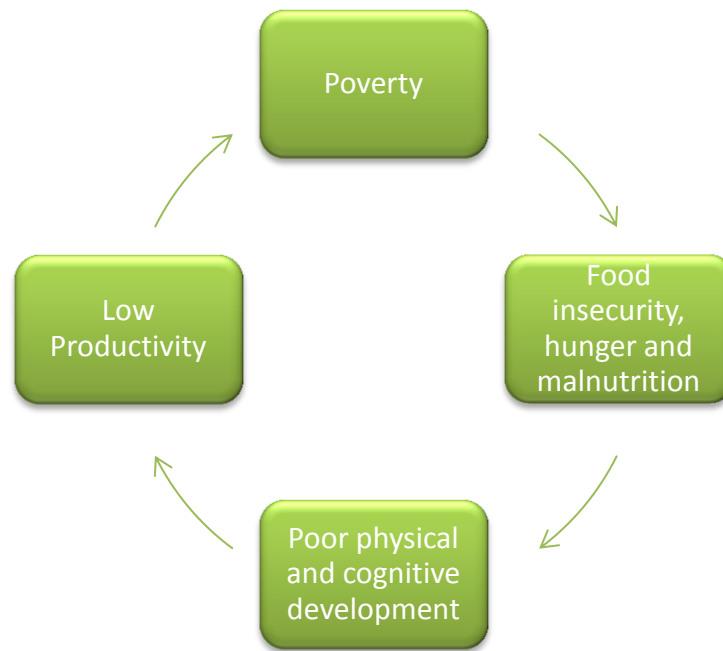
#### **2.3.3.2 Types of food insecurity**

Food insecurity can be divided into three types: chronic, seasonal or transitory (FAO, 2008). Chronic food insecurity occurs over the long term when people are unable to meet their minimum food requirements. It is the result of poverty, lack of assets and inadequate access to productive or financial resources. In comparison, transitory food insecurity is short-term and temporary, caused by a sudden change in the ability to produce or access enough food to maintain a good nutritional status. This may happen when there are short-term shortages and fluctuations in food availability and food access, including food production, food prices and

household income. Seasonal food insecurity is predictable and of a limited duration, and is the result of a cyclical pattern of inadequate availability and access to food such as seasonal climate change, disease, work opportunities and cropping patterns.

In general, there are five requirements that need to be fulfilled in order to achieve food security: enough food (food sufficiency), nutritious food (nutritional quality of the food), the availability of and access to food, the certainty of the availability and access to food, and the social and cultural acceptability of food (Institute of Medicine, 2011). In the absence of any of these individuals are likely to experience hunger, have a poor quality diet or poor nutrient consumption and have to rely on emergency relief (Saad, 1999; Tasmanian Food Security Council, 2012). This will have an impact on their health.

There are three important components of food insecurity: hunger, malnutrition and poverty. Hunger is usually understood as an uncomfortable or painful sensation caused by insufficient food energy consumption or simply, food deprivation (FAO, 2008). Although all hungry people are food insecure, not all food insecure people are hungry because there are other causes of food insecurity, including poor nutritional intake. Malnutrition results from deficiencies, excesses or imbalances in the consumption of macro- or micro-nutrients (FAO, 2008). Malnutrition may be an outcome of food insecurity, or it may relate to non-food factors, such as inadequate care practices for children, insufficient health services, or an unhealthy environment. While poverty “encompasses different dimensions of deprivation that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work” (OECD, 2001, p. 10), undoubtedly it is a cause of hunger and lack of adequate and proper nutrition. Figure 2.2 presents the interrelationship among the concepts related to food insecurity, malnutrition and poverty. Poverty-stricken individuals experience hunger, food insecurity and malnutrition which lead to poor physical and cognitive development and consequently affect their performance and productivity. Low productivity in its turn brings poverty, and the cycle keeps repeating if there is no viable solution.



**Figure 2.2: Food insecurity, malnutrition and poverty are deeply interrelated phenomena, adapted and modified from the literature (FAO, 2008)**

### **2.3.3.3 Consequences of food insecurity**

People experiencing food insecurity are likely to suffer from a range of health problems such as diabetes, obesity, cardiovascular disease; have a poor dietary intake and have a higher prevalence of mental health symptoms such as anxiety and depression (Dhokarh et al., 2011; Hadley et al., 2010; Muldoon et al., 2013).

Recently, research attention has been focused on the links between food insecurity and obesity (Institute of Medicine, 2011; Larson & Story, 2011; Pan et al., 2012).

Among the research studies regarding the relationship between food insecurity and weight status in the US, food insecure women were identified as more likely to be overweight or obese compared to those who were food secure (Larson & Story, 2011). It is also reported in the US that food insecurity was related to overweight status in women but not in men (Ivers & Cullen, 2011). This may be caused by food intake or diet; for instance, the food-insecure group consumed large amounts of fruit juice which contained high sugar levels (Mello et al., 2010). Furthermore, the 2007 and 2008 US National Health and Nutrition Examination Surveys also showed that children from food insecure households had significantly higher rates of dental caries than those living in food secure households (Chi et al., 2014). Compared to

food secure adults in 12 selected states of the US, it was reported that food insecure adults had significantly higher rates of obesity (Pan et al., 2012). In Australia, the incidence of food-related diseases remains high, although Australia is regarded as a country free from hunger. In 2007-2008, the Australian Institute of Health and Welfare (AIHW) reported that Australia's obesity rate ranked among the highest in the world (Crowe, 2009), with 61% adults and 25% children categorised as overweight or obese (Australian Institute of Health and Welfare, 2010). Being overweight or obese is the result of unhealthy eating habits and patterns. This implies that Australia is secure in respect to food quantity but not food quality.

Furthermore, food insecurity was positively associated with mental health issues such as depression and stress (Muldoon et al., 2013; Peterman et al., 2013). In a food insecurity study on Canadian adults, there was a high prevalence of mental health problems diagnosed among those with poor food quality and insufficient food (Muldoon et al., 2013). It is also reported that food insecurity and depression in mothers with primary school children in Iran showed a significant positive correlation (Payab et al., 2014). Thus, it is important to identify the individuals, households and communities that are experienced food insecurity, so that solutions and support can be provided to combat the effects of this food insecurity.

#### **2.3.3.4 At-risk groups for food insecurity**

Many studies have identified groups of people who face a higher likelihood of experiencing food insecurity. Groups that are regarded as specifically vulnerable and disadvantaged and who face food security problems are: aboriginal communities, unemployed people, low income earners, single parents (especially female-headed households), people with a disability or chronic illnesses, the elderly people, rental households, youths, females, people living in remote, isolated or socioeconomically deprived areas, and culturally and linguistically diverse (CALD) groups including refugees and migrants (Burns, 2004a; Rosier, 2011; Strategic Inter-Governmental Nutrition Alliance, 2001; Tasmanian Food Security Council, 2012; VicHealth, 2008). As listed above, these groups are most at risk of food insecurity in Australia. In fact, food insecurity is one of the causes of these disadvantaged groups

experiencing higher rates of obesity and chronic diseases (Friel, 2010; Peeters & Magliano, 2012).

#### *2.3.3.4.1 Females*

Gender is also an issue when it comes to food insecurity. Numerous studies of food insecurity have identified that females (individually or in a household) experience higher rates of food insecurity than males (Akerele et al., 2013; Cock et al., 2013; Evans, 2013; Omidvar et al., 2013; Peterman et al., 2013). It is suggested that females are more likely to experience food insecurity in a household because they are the ones who take care of the family's food consumption (Akerele et al., 2013). Households headed by males have a higher probability of being food-secure than households headed by women (Irohibe & Agwu, 2014). In most cultures, women play key roles in planning, acquiring and preparing healthy food, both for themselves and their families. The characteristics of women and the many aspects of their lives and experiences including their ethnicity, where they live, their age, income, education level, marital status and where they have children or not, influence their level of food insecurity (Evans, 2013). Food insecurity has a detrimental impact on women's physical and mental health causing depression and stress. Given their contributions to food production and preparation, and their role in society as child bearers and caregivers, the food insecurity of women and its effect on their health, nutrition, and behaviour need special consideration (Ivers & Cullen, 2011).

#### *2.3.3.4.2 Migrants or refugees*

People with different cultural backgrounds, such as migrants and refugees, experience high rates of food insecurity when they resettle in their host country (Hadley et al., 2010). A comparison between migrant and non-migrant households identified, migrant households as having lower food security than non-migrant households (Crush, 2013). For example, the prevalence of food insecurity in migrant and seasonal farm workers was reported as four times greater compared to the general population of the US (Hill et al., 2011). Borre, Ertle and Graff (2010) report that always over half the migrant and seasonal farm workers experience food insecurity in the host country (Borre et al., 2010). The situation becomes more

challenging for older migrants as an individual's capability to adopt the social, linguistic, and dietary behaviours of the dominant group decreases with age (Franzen & Smith, 2009). Migrants and refugees may have traditional cultures that are different from the food culture of the host country. Thus, they have to make changes in their eating patterns and food habits to adapt to the new cultural conditions (Burns, 2004a; Rosier, 2011).

### **2.3.4 Household and community food security**

It is apparent that food security is a multidimensional phenomenon which can be examined from many different angles or levels. Food security can be measured at multiple levels; from individual to household, community, regional, national and even at a global level (FAO, 2008; Power, 2005). Household food security and community food security are two levels of food security that are widely discussed.

#### **2.3.4.1 Household food security**

Household food security refers to the people or family members in a household: that they should have an adequate supply of food and a complete nutritious diet in their daily life. A high level of household food security exists when there is “adequate access to enough food to supply the energy needed for all family members to live healthy, active and productive lives” (Sahn, 1989, p. 3). Thus, adequate food supply is the main aspect of household food security. Adequate nutritious food should be available and can be accessed by members of the household at all times in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing or other coping strategies), (Anderson & Cook, 1999; Eide, 1990).

Anderson and Cook (1999) used four factors to assess food security at the household level: the repleteness of household stores, the quality and safety of available foods, anxiety about food supplies, and sources of food. When there is inadequate supply of food in the house for part or all of the time, members of the family may face the possibility of having an inadequate or low quality diet and this is seen as food insecurity (Grutzmacher & Gross, 2011; Philips & Taylor, 1990). In a household, women and children are the family members who normally encounter

food insecurity (Larson & Story, 2011; McCurdy et al., 2010; Nnakwe, 2008). In previous studies, females have been identified as having a higher risk of food insecurity compared to males because females are usually the ones who take care of the family's dietary needs and they tend to put the dietary needs of their family members before theirs (Stevens, 2010).

It has been widely documented that low socioeconomic status households experience higher rates of food insecurity than households with average and higher incomes (Olorunfemi et al., 2009). A 2009 survey of household food security in Tasmania showed that low income households were twice as likely to face food insecurity compared to average income households (Tasmanian Food Security Council, 2012). Low household income will affect the distribution of household expenditure, especially on food. Many low income households tend to place food at the bottom of household budget allocation because they consider food a flexible necessity (Flanagan & Flanagan, 2011; Tasmanian Food Security Council, 2012). Household size also influences the level of food security, whereby the larger the household (i.e., the greater the number of family members), the higher the risk of food insecurity (Olorunfemi et al., 2009).

#### **2.3.4.2 Community food security**

Community food security exists when community can produce or afford to buy food they need and always have enough healthy food to maintain a healthy life.

Community food security assures the supply of and access to quality food for all social groups and individuals to meet their nutritional needs (Barraclough & Utting, 1987). Anderson and Cook (1999) defined community food security as a systematic understanding of and concern for food security at the community level with environmentally and socially sustainable targets that ensure food security in the long term. Hamm and Bellows (2003) also supported the argument that community food security can be reached when all community members are able to access a safe, nutritious and culturally acceptable diet, achieved sustainably and in a way which maximises community self-reliance and social justice. Available food must not only be healthy and safe to consume, but should also meet the cultural dietary needs of individuals in the community. Community food security also emphasises



the abilities of individuals to provide for their food needs (Tasmanian Food Security Council, 2012). They must be competent at producing their own food or fulfilling their food needs. Similar to household food security, community food security can be assessed using three factors: the quantity and quality of available food, food accessibility, and food affordability (Anderson & Cook, 1999). Food security removes the fear in the community that there will not be enough food to eat (Maxwell, 1991).

### **2.3.5 Food culture**

Food culture is an important factor to consider when discussing food security among migrants from diverse cultural backgrounds. Cultural food security should receive special attention in a multicultural society (Power, 2008). Cultural food security is more challenging when people from different countries with different cultural values and foods gather and live together in a multicultural country such as Australia. Food culture is concerned with the food habits or eating styles prevalent in a person's place of origin. Food culture is influenced by the locality of origin and is shaped by resources, beliefs, information, ethnicity, technology, colonisation, health status and healthcare (Wahlqvist & Lee, 2007).

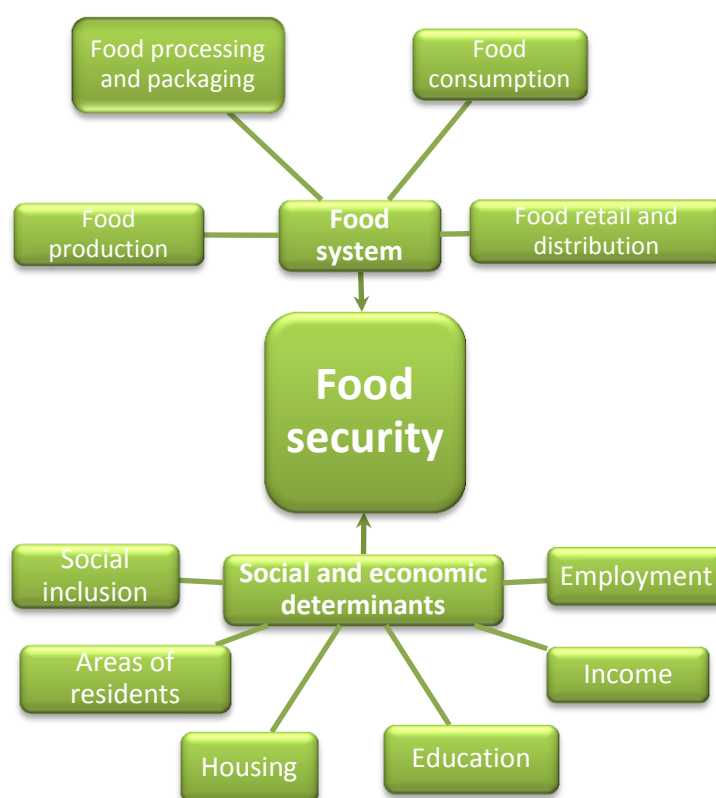
In Australia Aboriginal people and migrants often have unique food cultures which are shaped by their places of origin. A traditional food system may not provide adequate nutritional values for good health. However, from the point of view of aboriginal people, traditional foods are more nutritious than market foods (Power, 2008). In this way, cultural food security acts at an additional level that is beyond the individual, household and community level (Power, 2008). People with different cultural identities tend to retain their own cultural food systems and obtain traditional foods which signify their culture and personal values. In most cases, the cultural food or cuisine is an important marker for identity, ethnicity and cultural belonging (Garnweidner et al., 2012; Longhurst et al., 2009; Power, 2008; Wahlqvist, 2002). Aboriginal people and migrants have a tendency to retain their traditional food habits; however, external factors in their new environment warrant changes in their daily diets.

In fact, most of the production of traditional cultural food depends on natural resources. In a study of the cultural food security of aboriginal people in Canada, Power (2008) identified the factors influencing cultural food security in terms of the accessibility and availability of traditional food; these were climate and environmental contaminants, which affected the distribution of the traditional food supply. Pollution of the traditional food supply reduced the sources and diversity of food as well as the food quality. Geographical and socio-economic restrictions can hinder people with specific cultural identities from obtaining their traditional food ingredients when they move to a new place (Wahlqvist & Lee, 2007). Higher prices for traditional food ingredients and the unavailability of specific traditional food ingredients in the new environment are part of the challenge. Since there is a lack of traditional food sources, aboriginal people and migrants are forced to make some changes in their diet. For instance, they replace traditional food ingredients with market substitutes when preparing traditional meals or consume local food such as fast food to replace their daily meals (Kuhnlein & Receveur, 1996). The replacement of traditional food with market food may impact the nutritional consumption and therefore the health of the cultural groups affected. As a result, people from different cultures experience poor health when they are forced to alter their diet in their new setting. The literature shows that the longer a migrant stays in Australia, the more he or she adapts to the lifestyle of Australian born residents (Rissel, 1997; Wahlqvist, 2002). However, the health of migrants is threatened when they try to assimilate Australian food styles such as fast food and take-away food that they have not experienced before in their home countries. Studies report that the health status of migrants worsens the longer they live in the host country (Hadley et al., 2007; Portillo et al., 2001). Hence, the food culture of a new country will influence the eating habits and health status of the new comers with a different food culture.

## **2.4 Socioeconomic and cultural factors that influence food security**

Previous studies have identified the groups most at risk of food insecurity (Rosier, 2011; Tasmanian Food Security Council, 2012; VicHealth, 2008). According to the *Determinants of food security* model developed by Ericksen, Ingram & Liverman

(2009), the food system and the social and economic determinants are the two main factors (determinants) that determine food security (Figure 2.3).



**Figure 2.3: Determinants of food security, adapted and modified from the literature (Eriksen et al., 2009; Tasmanian Food Security Council, 2012)**

The food system is an indicator of local food supply and includes food production, food processing and packaging, food consumption, and the food retail and distribution outlets that measure the level of food supply (DAFF, 2012; Tasmanian Food Security Council, 2012). The local food system functions to provide an adequate quality food supply ensuring that adequate healthy food is available, thereby ensuring food security. Food produced directly from local farmers and producers contributes to stabilising the local food system. Food processing turns primary produce into saleable food products. It is essential that food is processed and packed correctly as this will affect the availability, price, quality, variety and labelling of food. Distribution of food refers to transport of unprocessed, processed and manufactured food and food products for retail purposes. Food transportation could impact the availability of food in the food system, particularly in remote and

isolated areas. Food consumption affects the food system as it involves the customs and methods that individuals have of acquiring and preparing food.

Both determinants comprise different factors such as locations of food outlets, financial resources, physical access, food prices, food quality and others (Figure 2.3). All of these factors potentially influence levels of food security among disadvantaged groups because people make individual choices about what to eat and how much to eat, within the social, cultural and economic context of their lives (Backholer & Peeters, 2012). These identified factors can be divided into four main categories: socioeconomic status, geographical location, cultural and other. Each of these categories is discussed in detail below.

The social and economic determinants include social inclusion, location of residence, housing, education, income and employment. Social and economic status is one of the influential factors for food access. An individual's social status, knowledge, financial status and residential area will affect their level of food security. In order to achieve food security, all the dimensions of food security should be taken into consideration, in conjunction with the determinants affecting food supply and access.

#### **2.4.1 Socioeconomic status**

Financial support has been identified as a major determinant of food access and has a significant impact on food security (Akerle et al., 2013; Anderson & Sellen, 2013; Carter et al., 2010; Darmon & Drewnowski, 2008; Kneafsey et al., 2013; Radermacher et al., 2010; Rosier, 2011; Vahabi & Damba, 2013). Household income and financial support affects affordability of and access to food. People such as the unemployed and those who are separated/widowed or divorced can lose their power to purchase food (Thornton et al., 2014; Vahabi & Damba, 2013). The unemployed or very low income earners are at risk of running out of food and having no money to buy more (Burns et al., 2011). Food security increases as income increases (Nord, 2000; Pearson et al., 2009; Vahabi et al., 2011).

Even when there is good access to nutritious food, people from low socioeconomic backgrounds still face food insecurity due to their finances (Kirkpatrick & Tarasuk, 2010). According to Tasmanian Food Access Research Coalition (TFARC) (2013), financial problems were identified as a barrier for households in getting the food they need. In the US, economic research reports compiled by the Department of Agriculture show that families with lower household incomes are more likely to be food insecure (Nord et al., 2010). Likewise, the Tasmanian Population Health Survey (2009) found that households with the lowest income were more likely to be food insecure compared to those with average and higher incomes. Vice versa, people with higher socioeconomic backgrounds have better health and food security (Backholer & Peeters, 2012). This indicates that the financial resources or financial status of a household are a major contributor to food security (Bowman, 2006; Cannon, 2008; Kuhnlein & Receveur, 1996; Radermacher et al., 2010; Strategic Inter-Governmental Nutrition Alliance, 2001; Tsang et al., 2007).

Income is among the strongest predictors of food insecurity (Carter et al., 2010). When financial resources are inadequate, individuals or households will face a restriction in food affordability, particularly the more expensive healthy food. As a result, people with low incomes tend to consume high energy-dense and low fibre food, which is generally associated with lower cost and is thus more affordable to those on low incomes (Alderman & Garcia, 1993; Backholer & Peeters, 2012; Bowman, 2006). Undoubtedly, the price of healthy food is one of the reasons leading to obesity or excessive weight gain. Due to the price, healthy nutritious foods such as fruit and vegetables are mostly likely to be consumed by those on high incomes (Darmon & Drewnowski, 2008). For instance, newly arrived African migrants in the US modified their diet to accommodate the budgetary constraints of their low incomes (Patil et al., 2009). Their diets shifted to more energy-dense, nutrient-poor foods (stereotyped as 'American foods') because these foods cost less than fresh fruit, vegetables, meat and fish. Thus, socioeconomic status affects the quality of diet.

In addition, people from lower socioeconomic backgrounds tend to be more concerned about food prices when purchasing food (Brinkman et al., 2010; Tapsell,

2010). Their limited income restricts their food choices and decisions when purchasing food. Generally, people with low incomes have to opt for more affordable and less healthy alternatives (Cuesta et al., 2011). On the other hand, people from higher socioeconomic backgrounds are more likely to choose the food they need on the basis of taste preferences and health considerations (Borre et al., 2010), rather than cost.

Due to financial restrictions, people from low socioeconomic backgrounds tend to put food to the bottom of the list when allocating their household budgets because food expenses are more flexible to manage (Flanagan & Flanagan, 2011; Kettings et al., 2009; Tasmanian Food Security Council, 2012; Ward, Verity, et al., 2013). In a household budget, food is a flexible item compared to fixed items such as housing costs, electricity bills and transport expenses. The cost of food is commonly reported as a barrier to healthy eating (Cuesta et al., 2011). It can be burdensome for low income families to allocate a sum of money to achieve a healthy diet (Flanagan & Flanagan, 2011; Green-LaPierre et al., 2012; Kettings et al., 2009). Ward and his colleagues indicated that low-income families would have to spend approximately 30% of their household income on eating healthily, while high-income households would only spend about 10% (Ward, Verity, et al., 2013). Similar results were found similar in Clarence and Dorset in Tasmania where the low-income households spent up to 46% of their income on a healthy food basket in comparison to households on a waged income, which spent up to 22% (Lê, Murray, et al., 2013). Therefore, low income families tend to choose cheaper food (that is energy-dense) without considering the nutritional value of the food (Caraher et al., 1998; Wong et al., 2011). This reinforces the finding that lower income families from lower socioeconomic areas are less likely to purchase healthy food compared to higher income families from higher socioeconomic status areas (Kavanagh et al., 2007). To this end, families from low socioeconomic backgrounds who experience food insecurity are shown to have higher obesity rates compared to others from higher socioeconomic backgrounds (Fitzgerald, 2010; McCurdy et al., 2010; Spurrier et al., 2012). Studies support that obesity and excess weight is related to

socioeconomic status. Therefore, an improvement in financial resources can contribute to relieving the problem of obesity.

Socioeconomic status determines the allocation of household expenses, specifically money spent on purchasing healthy food (Tsang et al., 2007; Wong et al., 2011). People living on low incomes are less affordable to purchase a healthy food basket (Ward, Verity, et al., 2013). An example of a healthy food basket is Victorian Healthy Food Basket (VHFB) which consists of 44 foods from the five core food groups (e.g., breads, cereals, fruit, vegetables, legumes, meats and dairy) and one non-core food group (e.g., sugars and fats) (Palermo & Wilson, 2007). In recent years, the cost of the healthy food basket has increased and became more expensive (Givoni & Palermo, 2010; Harrison et al., 2010). The rise in food prices has made fresh and nutritious food less affordable for many people (Australian Food Sovereignty Alliance, 2013; Friel, 2010; Friel & Baker, 2009).

A Victorian investigation on the cost of a healthy food basket identified that vegetables and legumes were the most expensive components of the food groups in the healthy food basket compared to others, particularly in rural areas (Palermo et al., 2008; Wong et al., 2011). The purchase of a healthy food basket took more than a quarter of the fortnight income of low income and welfare dependent families (Wong et al., 2011), which was about three to four times greater than that of high income families (Backholer & Peeters, 2012; Barosh et al., 2014). Hence, it is more challenging for people with low incomes and limited budgets to obtain healthy food.

There is also evidence of the link between food security and employment. Studies show a significant increased risk of food insecurity for those who are unemployed (Radimer et al., 1997). At the household level, higher unemployment rates are linked to higher food insecurity (Bartfeld & Dunifon, 2006). Household members who experience a recent job loss are more likely to have insufficient food (Rose, 1999). Within Australia, being food secure was more likely to occur in those who were employed (Thornton et al., 2014). However, employment may not be sufficient to protect against food insecurity (Gorton et al., 2010). In the US, nearly

half of very low food secure households had at least one household member who was employed (Nord, 2007).

#### **2.4.2 Geographical location**

Geographical location has been identified as one of the factors affecting food availability, which is one of the main components of food security. In the model of the four components of food security (Figure 2.1), location is listed as a determinant of food availability. The location of food outlets, particularly supermarkets, is a key feature of the local food supply. Larger food outlets such as supermarkets offer a wider range of food options, cheaper prices and higher quality food (Liese et al., 2007; Zenk et al., 2009). A diverse range of healthy food, such as fresh fruit and vegetables can be found in supermarkets (Tsang et al., 2007). Food price is influenced by food availability (Liese et al., 2007). When there is a diverse range of food, food prices will be relatively lower, so food prices in supermarkets are relatively lower compared to local food outlets (Palermo et al., 2008). Better access to supermarkets will result in healthier diets and lower levels of obesity (Larson et al., 2009). It is also suggested that residents with limited access to fast-food restaurants and convenience stores tend to have healthier diets. However, the incidence of fast-food restaurants and availability of energy-dense foods is greater in lower-income and minority neighbourhoods (Larson et al., 2009). Thus, it is a challenge for people on low incomes, living in disadvantaged environments to obtain healthy food.

The availability of fruit and vegetables in food outlets influences the fruit and vegetable intake of the population in an area. The presence of larger food outlets with more diverse range of familiar or culturally specific fruit and vegetables increases the average daily fruit and vegetable intake among the ethnic community in the specific area. For instance, studies have found that less fruit and vegetables are consumed in Latino and African-American neighbourhoods in the US because most of the food outlets located in these neighbourhoods offered few commonly consumed or culturally specific fruit and vegetables (Booth & Watts, 2013; Grigsby-Toussaint et al., 2010; Zenk et al., 2009). Therefore, a barrier is created for culturally different populations to consume more fruit and vegetables in their diets.



Food availability and accessibility issues are always apparent in rural and remote areas. According to Tsang et al. (2007), the variety and quality of food, especially healthy and fresh food, decreases as the distance from an urban area increases. The availability of food is often restricted in small locales and rural areas, with usually only one food outlet in the locality. Isolated community food stores have limited stocks of fresh fruit and vegetables (Friel & Baker, 2009). Hence, a completely healthy food basket is less likely to be available at local food outlets in rural areas. Due to the location and limited food choices, food prices are normally higher in rural areas compared to urban areas. This can be due to the freight costs and irregular deliveries which contribute to high prices and a limited range of foods (Pollard et al., 2014). Moreover, generally healthy food is typically more expensive than less healthy food (Burns, 2004b; Kettings et al., 2009; Liese et al., 2007; Tsang et al., 2007). High food prices and fewer food varieties are burdensome for poor households in rural areas (Kaufman, 1998). Rural areas in the US experienced high rates of food insecurity problems related to poverty, food access and higher food costs (Pheley et al., 2002). A study in Queensland (Lee et al., 2002) on food availability, cost and accessibility in remote areas showed similar results: there was a greater increase in food prices for stores located in rural or remote areas, resulting in higher prices for a healthy food basket. The cost of a healthy food basket is higher in rural areas, compared to urban areas, affecting the access to healthy food by rural populations (Harrison et al., 2010).

Most people on low incomes are the ones who move to urban fringes and rural areas where food deserts are more likely to exist (Tasmanian Food Security Council, 2012). A food desert occurs where healthy food is difficult to obtain or is absent due to difficulty of access, low food quality, a restricted range of food quality or choices, and high food prices. These problems make it difficult for low income people living in rural areas to access or afford healthy food to achieve food security. Socially-distressed low-income neighbourhoods with poor access to health food often experience food deserts (Evans, 2013).

In addition, the accessibility of transport becomes one of the restricting factors for individuals purchasing food, particularly in rural and remote areas (Anderson &

Sellen, 2013; Kirkpatrick & Tarasuk, 2010; Patil et al., 2009; Vahabi & Damba, 2013). In rural and remote areas, transport is often needed to shop for food because of the distance between the home and the food stores and the quantity of items that need to be carried (Gorton et al., 2010). People who have their own transport have been shown to experience lower incidences of food insecurity (De Marco et al., 2009). A short walking distance to food shops is particularly important for people from lower socioeconomic backgrounds, as the cost of transport can become burdensome (Kirkpatrick & Tarasuk, 2010). Thus, the accessibility barrier relating to transport and mobility is reported as a factor contributing to the access to healthy food (Cuesta et al., 2011). In rural areas, people need to travel greater distances to access food because supermarkets or food outlets are usually further from their place of residence. However, there is often a lack of public transport in the urban fringes and remote areas (Friel & Baker, 2009). People with low socioeconomic backgrounds and the elderly living in rural areas can face difficulties in accessing public transport or have no transport that allows them to access food from stores that are located far away (Green-LaPierre et al., 2012). As a result, they would rather purchase food that is available locally, such as fast food, to replace their meals (Burns & Inglis, 2007). Consequently they consume more unhealthy food, which in turn affects their food security level. A study on food access in Melbourne showed that people who live within eight to ten minutes car journey of a major supermarket will eat healthier food compared to those who live further away (Burns & Inglis, 2007). Statistics from the Victorian Department of Health Services (DHS) showed that 7.3% of the population of Victoria faced difficulties in getting to food shops due to inadequate public transport (DHS, 2008). This is indicative of inadequate public transport or a lack of personal transport to and from shops in rural areas which restricts individuals from accessing healthy food.

### **2.4.3 Cultural factors**

Food and culture have a strong relationship as food is a strong pillar of any culture (Kittler & Sucher, 2008). As discussed previously, cultural identity is identified as one of the factors influencing food security. Researchers have indicated that people from culturally and linguistically diverse (CALD) backgrounds, for instance, migrants

and refugees, are at a high risk of food insecurity (Hadley et al., 2007; Kilanowski & Moore, 2010; Kuyper et al., 2006; Smith & Morton, 2009). Differences in cultural backgrounds have disadvantaged migrants and refugees in term of eating habits and food practices. For example, in New Zealand South East Asian migrants have a different choice in using different types of cooking oil compared to local people (Kruger et al., 2012). Indigenous people follow their traditional food practices which mostly depend on lean animal foods (Brimblecombe, 2012). Migrant women from different countries often use their traditional ways in cooking which they treat as a way to keep them connected to their home countries (Longhurst et al., 2009). The cultural food preferences of individuals, which usually depend on their taste and cultural backgrounds, may affect their food security (Vahabi & Damba, 2013; Women's Health Victoria, 2010). For instance, Hmong migrants treated rice as their staple food and this determined whether or not the food was considered a 'meal' (Franzen & Smith, 2009). Most migrants prefer their own cultural food although they are in a new country (Njomo, 2013; Vahabi & Damba, 2013). Migrants feel more connected to their home country and enhance their cultural identity when consuming their cultural food (Njomo, 2013). Thus, culture determines the food choices of migrants and their choice of where to shop. They prefer to do their grocery shopping at cultural food shops because these shops provide the familiar environment of home, and an opportunity to meet people from their country and to share information about events back home (Njomo, 2013). There is always limited availability and accessibility of culturally appropriate food in the host country (Anderson & Sellen, 2013). Migration to a new country makes migrants face the probability of losing the food products and food consumption patterns of their homeland (Wu, 2008). The lack of culturally appropriate food has affected cultural populations who often could not access familiar food due to factors such as the unavailability of culturally-specific food products, the expense of culturally-specified food or limited geographical access to ethnic food stores (Anderson & Sellen, 2013; Food Security Network of Newfoundland and Labrador, 2009; Njomo, 2013; Vahabi & Damba, 2013). A study of the food security issues faced by refugees and migrants in Canada reported that many adopted unhealthy 'North American' dietary habits because of the high costs and lack of availability of cultural food (Food Security

Network of Newfoundland and Labrador, 2009). Even when the preferred foods were widely available, the quality and variety of the food was different from that of the home country (Patil et al., 2009). A 2007 Victorian population health survey showed that 6% of the population in Victoria, Australia consumed a reduced variety of foods due to the lack of culturally appropriate choices available for purchase (DHS, 2008). A study on the health and food security of sub-Saharan African migrants in Australia also showed that cultural beliefs relating to food practices is a concern for these migrants in Australia. Religion can affect food choice, for instance Muslims follow Islamic religious law in their diet (Burns, 2004a; Burns et al., 2000; Renzaho & Burns, 2006). People prefer to choose cultural foods based on their own cultural identity (Renzaho, 2007).

These restrictions in diet have led to health problems among people with diverse cultural backgrounds in relation to food security. Declining health is observable in cultural population groups (Fitzgerald, 2010; Gallegos et al., 2008): obesity or excess weight and food-related health diseases such as diabetes, high blood pressure and hypertension, are common (Renzaho & Burns, 2006). It is often found that the health of new settlers in their new environment will decline after a period of settlement (Landman & Cruickshank, 2001), because of the changes in their eating habits as they try to adopt and adapt to the food culture of the host country. New migrants normally have no shortage of food in their daily life, but rather have too much unhealthy food and decrease their consumption of fruit and vegetables. Renzaho & Burns (2006) indicated that most migrants adopt Australian foods (mostly fast foods) when they settle in Australia, though they will still retain their traditional food habits in some ways. Nevertheless, they experience rapid weight gain which leads to obesity and chronic diseases. Ethnic groups living in rural areas experience a higher risk of obesity compared to the local people in the same areas (Patterson et al., 2004). To summarise the research related to cultural factors: people from cultural backgrounds different to the host country are at higher risk of food insecurity; the differences in their food habits and financial resources leading to a decline in their health status.

#### **2.4.4 Household size**

Household size is also one of the determinants of food security (Akerle et al., 2013; Cock et al., 2013; Olorunfemi et al., 2009). An expansion in the size of the household will increase the incidence of food insecurity: the larger the household, the lower the food security (Kilanowski & Moore, 2010). A large household may be more likely to be food insecure than a small household (Irohibe & Agwu, 2014). In a large household, the number of dependents increases with a higher percentage of household food expenditure applied to each head in the household to ensure food security. A study on food insecurity in South Australia reported that food insecurity was found to be highest in households with three or more children (Foley et al., 2010). As family size increases food demand increase which leads to a reduction in the food available to each person within the household and affects their nutritional status (Aidoo et al., 2013; Olayemi, 2012). A greater food supply is needed to feed the whole family (Cock et al., 2013). Thus, it is recommended that household size should be reduced in order to lower the pressure on family income (Olorunfemi et al., 2009).

In terms of household composition, single-parent families, particularly those with women as the household head, are more likely to experience food insecurity (Bartfeld & Dunifon, 2006; Olson et al., 2004; Radimer et al., 1997). A change in household composition such as an increase in number of children is adversely associated with food security (Bartfeld & Dunifon, 2006). Studies have also shown that households with children have a higher risk of food insecurity than households without children (Furness et al., 2004).

#### **2.4.5 Educational background**

Educational background plays a critical role in the food security of households or individuals (Cock et al., 2013). It is suggested that the higher the level of education of the head of the household, the lower the severity and depth of food insecurity (Akerle et al., 2013). Similarly, the probability of a household being food secure was reported to be higher when the head of the household had higher levels of education, compared to those households where the head of the household had

lower education levels (Irohime & Agwu, 2014; Nunnery et al., 2014; Omidvar et al., 2013). Obtaining higher education qualifications has been shown to be associated with healthier dietary behaviours (Oluwatayo, 2009; Thornton et al., 2014). The promotion of healthier eating can be achieved by increasing the knowledge and ability of the migrants to understand nutrition and health. There is a high association between people with higher education qualifications and a higher consumption of fruit and vegetables (Peterman et al., 2011). Research on the dietary practices of Cambodian refugee women in the US showed that the women with the lowest levels of education consumed least fruit and vegetables, while high school graduates consumed the most (Peterman et al., 2011). Limited education about health also affects the dietary practice of individuals (Peterman et al., 2011); individuals who had received nutrition education had healthier eating habits than those who had not. It is suggested that nutrition education can be a useful tool to improve the dietary practice of individuals. Furthermore, education provides a higher chance of being employed, which can lead to a higher income and greater purchasing power to buy sufficient food for the household.

Education is a good marker of socio-economic position or alternatively it has been argued that education may act as a promoter of healthier eating behaviours by increasing the knowledge and ability of an individual to understand nutrition and health (Thornton et al., 2014).

Knowledge related to good food nutrition and food preparation skills has become one of the keys to food security (Gorton et al., 2010; Mello et al., 2010). Indeed, in Canada, it was found that households with poorer self-rated cooking skills were eight times more likely to experience food insecurity than households with higher levels of cooking skills (Broughton et al., 2006). Furthermore, compared to households with low levels of food preparation and financial skills, the likelihood of being food insecure was 77% and 86% lower in those with medium and high skill levels respectively (Olson et al., 2004). Low-income communities in Canada have also reported the impact of low literacy levels on food security, as low literacy levels make food purchasing and preparation more challenging (Hargrove et al., 1994). The results of the lack of knowledge in food preparation skills can be a factor for

food insecure individuals to engage in unhealthy eating behaviours such as eating high fat food (Mello et al., 2010).

## **2.5 Factors that influence the food security of migrants**

There are particular factors influencing the food security of migrants in the host country, these include: length of stay in the host country, the language barrier, knowledge about food in the host country, and social network (Akerele et al., 2013; Dhokarh et al., 2011; Gallegos et al., 2008; Hadley et al., 2007; Kilanowski & Moore, 2010; Vahabi & Damba, 2013). These are the main factors that have been identified that contribute to the food insecurity of migrants.

### **2.5.1 The concept of migration and migrant**

Before the discussion of factors that potentially affect the food security of migrants, the concept of migrants must be introduced as it is the target population of this study. The definition of migrant and migration, and the differences between migrant and refugee will be discussed below.

#### **2.5.1.1 Migration**

There are various definitions of migration in the literature. Migration is a process of social change during which a person moves from one cultural setting to another in order to settle for a longer period of time or permanently (Syed & Vangen, 2003). According to INDEPTH (2008), migration is defined as “the movement of people across a specified boundary for the purpose of establishing a new or semi-permanent residence” (para. 1) . The movement of place of residence can be across cities, countries, provinces, states or international boundary lines (Sandilya, 2007). Bhugra (2004b) concluded that migration is “a process of social change where an individual, alone or accompanied by others, because of one or more reasons of economic betterment, political upheaval, education or other purposes, leaves one geographical area for prolonged stay or permanent settlement in another geographical area” (p. 129). When an individual or a group of people migrate from one place to another, it involves developing an understanding of different social, cultural, economic and political systems; and a sensual and visceral understanding of different socio-geographic environments. These differences can be in language,

gestures, textures, sounds, smells, tastes and culinary practice (Longhurst et al., 2009). Put simply, migration means moving from one place to a new place where there will be life changes, including changes in cultural identity in the new setting. Burnett (1998) in her book *Issues in immigrant settlement in Australia* agreed that migration involved cultural adaptation which is a complex and important process for migrants. The process of cultural adaptation is implicit in the social and economic tasks associated with settlement including obtaining employment, housing, health care, child care, learning English and others.

Migration is an important contributing factor in population change. In Australia, the Department of Immigration and Citizenship (Department of Immigration and Citizenship, 2013) has identified two components that affect the growth of the Australian population: natural increase and net overseas migration (NOM), where NOM is “the net gain or loss of population through immigration to Australia and emigration from Australia” (Department of Immigration and Citizenship, 2013, p. 4). Every person who enters Australia is categorised according to their purpose for migration. There are three categories in the NOM component: Net Permanent Arrivals, Net Temporary Residents and Net Other Arrivals. Net Permanent Arrivals encompasses arrivals under the Permanent Migration Program and Humanitarian Programs. Net Temporary Residents are defined as international students, temporary skilled (457 visa) workers, working holiday visitors, tourists and other visitors. Net Other Arrivals includes Australian citizens, permanent residents and New Zealand citizens who have free movement to settle and emigrate to Australia.

#### **2.5.1.2 Migrant**

Migrants are a very diverse group coming from many different countries of origin with different ethnic and socioeconomic backgrounds. The term ‘migrant’ is defined as ‘any person who lives temporarily or permanently in a country where he or she was not born, and has acquired some significant social ties to this country’ (UNESCO, 2011, para. 1). This definition may be considered too broad. According to the ABS, a migrant is “a person who was born overseas whose usual residence is Australia” (Australian Bureau of Statistics, 2013b, para. 18). Migrants are those residing in Australia for a period of 12 months or more. This term refers to all



people, regardless of nationality, citizenship or legal status. They are free to make their own choice to stay or leave a country. According to Castles (2000), the following persons can be considered as migrants:

- Persons who are outside the territory of the State of which they are nationals or citizens, are not subject to its legal protection and are in the territory of another State.
- Persons who do not enjoy the general legal recognition of rights which is inherent in the granting by the host State of the status of refugee, naturalized person or of similar status.
- Persons who do not enjoy either general legal protection of their fundamental rights by virtue of diplomatic agreements, visas or other agreements.

(Castles, 2000, pp. 270-271)

However, there are still issues associated with the two terms 'migrant' and 'refugee'. In the 1951 *Convention Relating to the Status of Refugees*, the term 'refugee' was defined as "any person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his/her nationality and is unable, or owing to such fear, is unwilling to avail himself/herself of the protection of that country" (Refugee Council of Australia, 2010, para. 3). Refugees leave behind their homes, most or all of their belongings, family members and friends. Some are forced to flee with no warning and many have experienced significant trauma or have been tortured or otherwise ill-treated. The journey to safety is fraught with hazard and many refugees risk their lives in search of protection. Refugees cannot return unless the situation that forced them to leave improves (Refugee Council of Australia, 2012). Refugees are different from migrants as refugees are forced to leave and move to a new country because of persecution; whereas migrants freely choose to leave and settle based on their conscious choice and motives.

In this study, the term 'migrant' refers to people who were born overseas whose usual residence is in Australia, as defined by the ABS (Australian Bureau of Statistics, 2013b). He or she must be a permanent resident of Australia (i.e., a citizen or have a

permanent visa). In a new country migrants will definitely experience changes in their life and will try to adapt to the host country. Both positive and negative consequences resulting from migration will have an impact on the food security and health of migrants. Various challenges facing migrants, especially eating habits, will affect their health and well-being. Moreover, the loss of social networks and the sense of community may also lead to health problems among migrants (Bathum & Baumann, 2007). Hence, acculturation strategies should be developed to support migrants to cope with the changes they meet, especially with regard to food security associated with their health and well-being.

### **2.5.1.3 Cultural identity in Australia**

Migrants from diverse cultural backgrounds contribute to making Australia a multicultural country. There are more than 200 different cultural groups in Australia. It is estimated that 26% of the total population of Australia in 2010 was comprised of people born overseas (Australian Bureau of Statistics, 2011a) and the number of overseas-born residents increased at an average of 3.1% per year. The migrant population predominately originates from Asia, Europe and Africa. Recently, Asia and Sub-Saharan Africa have become the main sources of migration. The top ten countries from which migrants originate are: Korea, New Zealand, China, India, Italy, Vietnam, the Philippines, South Africa, Malaysia and Germany (Australian Bureau of Statistics, 2011a; Radermacher et al., 2010). In Tasmania, the proportion of overseas-born residents was 16.4% in 2011 (Australian Bureau of Statistics, 2012a). The food security challenges facing migrants should be highlighted and factors affecting their food security identified so that solutions can be developed to improve the level of food security among migrants in Australia.

### **2.5.2 Length of stay in the host country**

Length of stay in the host country has become one of the factors affecting the food security of migrants. It is noted that migrants face different challenges when they first arrive or during the first few months in the host country. The *Good For New Arrivals Program* (Association for Services to Torture and Trauma Survivors, 2001) for refugees living in Western Australia has identified some common problems in terms of food for refugees after their arrival in Australia: difficulty in locating cheap

supplies of traditional foods; difficulty locating supplies of halal meats and identifying permitted halal foods; unfamiliarity with many of the fruit and vegetables in Australia; cost of familiar foods; adjusting to the timing of the main meal and others. All these problems may be reasons for migrants to be susceptible to food insecurity (Burns, 2004a; Burns et al., 2000). Recent migrants experience greater hunger, possibility related to cultural adjustment, social isolation, unemployment, limited English language skills and unfamiliarity with the food available in the host country (Anderson & Sellen, 2013; Evans, 2013). There are also challenges facing migrants and refugees in relation to their length of stay in the host country. New comers have been identified as at a higher risk compared to those who stay longer in the host country (Chilton et al., 2009; Hadley et al., 2007). A study on the food insecurity of refugees in the US indicated that the longer the refugees were settled in the US, the lower the incidence of food insecurity (Hadley et al., 2007). It appears that 73% of the refugees who had stayed for less than one year in the US experienced food insecurity; while the figure dropped to 33% if they had stayed for over three years in the US. Migrants who had spent less than half their lives in the host country (the US) were found to have a 1.5 times greater risk of food insecurity (Kaiser et al., 2007). Omidvar et al. (2013) reported that food insecurity among Afghan migrants in Iran decreased with the increase in their duration of residency in Iran. Chilton et al. (2009) also reported that migrants who had lived in the host country for more than 10 years were at significantly lower risk of food insecurity than newly arrived migrants. Longer length of residency has been shown to increase acculturation, adaptation and livelihood strategies (Omidvar et al., 2013). The longer the time spent in a new country the greater the indirect exposure of migrants to knowledge about access to local food and skills in meal preparation. Moreover, the longer the stay in the host country the better the English-language skills become for migrants, especially those from non-English speaking countries (Chilton et al., 2009).

### **2.5.3 Language barrier**

Language can be a barrier to achieving food security and people from non-English speaking countries are disadvantaged when they move to English speaking

countries. Language can be a communication barrier for the non-English speaker and hinder them from accessing food-related information and services in the community (Anderson & Sellen, 2013; Vahabi & Damba, 2013; Vahabi et al., 2011). For example, a study on Californian women reported a higher risk of food insecurity for non-English speaking women (Kaiser et al., 2007). A similar study in Sydney also reported that non-English speaking groups had a higher prevalence of food insecurity than an English speaking group (Nolan et al., 2006). Lack of language skills leads to a lowered awareness about and access to available community-based food resources. In addition, lack of language skills also indirectly restricts the ability of non-English speakers to obtain well-paid employment (Vahabi et al., 2011), which also affects their food security. However, research has demonstrated that the length of stay in a host country has an impact on language proficiency. The longer the period of stay in the host country, the more the language barrier can be overcome as more practice is gained in the host language; most migrants that have lived in the host country for several years have higher proficiency in the host language compared to newcomers (Dhokarh et al., 2011; Hadley et al., 2007) and therefore their food security will be greater.

#### **2.5.4 Knowledge about food in the host country**

The food security of migrants will be affected if they lack food-related information in the host country (Patil et al., 2009). New migrants who face difficulties in purchasing, preparing and cooking the new food, and in reading food labels, are unable to consume the new food even they wanted to, because they have limited knowledge about alternative food preparation (Sanou et al., 2014). Thus, migrants are particularly susceptible to food insecurity (Burns, 2004a; Burns et al., 2000). Findings from a US study on the health of women in migrant households in California (Kaiser et al., 2007) showed that, compared with English-speaking, non-immigrant women, their lack of information about food in the host country lead them to experience more confusion over the food selection available in American shops. A Canadian study (Food Security Network of Newfoundland and Labrador, 2009) also reported that refugees and migrants who were unfamiliar with local foods tended to choose to eat unhealthy cheap foods. Migrants alter their diet to

accommodate the types of new food or diet they find in the new country and fit into the food culture of their new environment. Studies show therefore that migrants have particular factors that affect their level of food security in the host country.

### **2.5.5 Social network**

The lack of a social network has been identified as a significant food insecurity risk factor (Dhokarh et al., 2011). Social integration and cohesion plays an important role in influencing individuals to adapt to a food culture in a new environment (Patil et al., 2009). Migrants face a high risk of food insecurity due to low rates of social integration into the host society (Omidvar et al., 2013). A social support network is helpful in times of food deprivation. Persons perceived as having a low social capital will be at a higher risk of food insecurity (Kirkpatrick & Tarasuk, 2010). Thus, migrants are encouraged to socialise with others and build up their own social networks which could be beneficial in improving their food security and lifestyle.

## **2.6 Food security in Australia**

Australia is in the enviable position of having adequate quantities of high quality food to feed its population. Australia's food is supplied through domestic production and imports. Australia produces enough food today to feed around 60 million people (PMSEIC, 2010).

High levels of employment and an income support safety net mean that food is affordable and accessible for most Australians. Australians spend only 17% of their average income on food (Australian Bureau of Statistics, 2011b) and Australia is listed as one of the world's top five countries for affordable food (Economist Intelligence Unit, 2014). Despite this, some people still find it difficult to access and afford nutritious food. In a country as wealthy as Australia, no one should go hungry.

Although Australia is a relatively affluent country, food insecurity is still an issue. Australian studies have found that food insecurity affects some groups including young people, the elderly, persons from CALD backgrounds, low-income earners,

large households, and indigenous Australians. Although food insecurity is commonly found in rural and remote areas, it also occurs in specific disadvantaged urban areas. A study of households in three socially disadvantaged localities in south-western Sydney showed that 15.8% experienced food insecurity (Nolan et al., 2006). Similarly 25% of adults residing in disadvantaged urban areas of Brisbane were reported to be food insecure (Ramsey et al., 2012). A study in Perth (Western Australia) showed that food insecurity was prevalent among the refugee population, with 70% of those sampled reporting that they ran out of food due to lack of financial resources (Gallegos et al., 2008). Indigenous communities in remote Western Australia also reported their experiences of hunger and going without food due to the high cost of food and lack of money to buy food (Pollard et al., 2014). In South Australia, 7% of the research subjects in a study reported running out of food and not having enough money to buy food (Foley et al., 2010). A study on the prevalence of food insecurity among elderly Australians in Western Sydney discovered that 13% of them experienced food insecurity (Russell et al., 2014). In most cases the groups vulnerable to food insecurity indicated low income or lack of financial support as their main concern (Crawford et al., 2014; Gallegos et al., 2008; Ramsey et al., 2012). Young people in central and South-Western Sydney were reported to experience food insecurity, hunger and poverty (Crawford et al., 2014). In Queensland, the rates of people experienced food insecurity were found to be higher in urban than in rural areas (Radimer et al., 1997).

As with mainland Australia, food security is also an issue for some residents of Tasmania. The socioeconomic status of Tasmania is lower compared to other states of Australia (Tasmanian Food Security Council, 2012) and a higher proportion of the Tasmanian population tend to experience food insecurity compared to the other states and territories of Australia (DHHS, 2009). A recent study to examine the food security of vulnerable youth in North West Tasmania found that young residents faced food insecurity issues due to financial difficulty and a lack of stable employment (Lê, Auckland, et al., 2013). The study also revealed the numbers of Tasmanian young people that had gone without meals the previous year. This was particularly high for Tasmanians who were unemployed, underemployed or were in

casual employment (Lê, Auckland, et al., 2013). Another study examined food security issues in the Dorset and Clarence Local Government Areas (LGAs) of Tasmania reported that 6.6% of the residents sampled had low food security and 2.1% of them went without food at times (Lê et al., 2014). The prevalence of food insecurity was found to be higher among low income households, the young, the elderly, and those living in socioeconomically disadvantaged rural areas (Lê et al., 2014). The findings from various studies on food security in Australia demonstrate that more attention should be paid to this issue in order to enhance the food security of disadvantaged populations in Australia.

## **2.7 Strategies to improve food security**

### **2.7.1 Policies in Australia**

In this section, the main issues to be discussed are the *National Food Plan (2012)*, *Eat Well Australia (2001)*, the *National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (2009)*, the local food system, food labelling, and the *Tasmanian Food and Nutrition Policy (2004)*. As food security is an important issue, actions and strategies have been planned and implemented to improve and enhance food security for vulnerable groups. New policies have been developed at the national level in Australia. One of the ways to ensure food security is through the development of policy (Sydney Food Fairness Alliance & Food Fairness Illawarra, 2005). The development of a *National Food Plan* (DAFF, 2012) is the first time the Australian Government has put forward an overarching framework for its role in the food system with the purpose to monitor and improve health conditions through food supply and consumption in Australia. The *National Food Plan* will provide an integrated approach to food-related policies and programs for the benefit of food businesses and consumers. This will ensure Australia has a sustainable, globally competitive, resilient food supply that supports access to nutritious and affordable food. The plan notes that Australia has an abundant and reliable supply of fresh, nutritious, safe, high quality and affordable food, but recognises that some groups have difficulty in accessing food due to some reasons. The plan has made a move to upgrade health conditions in Australia through the food industry to ensure there is

an abundant and reliable supply of fresh, safe, high quality and affordable food. A transformational shift in the food system, food production and food consumption to a healthy, sustainable, fair and prosperous system, will help to sustain food and nutritional security for present and future generations. In terms of food security, the Australian Government remains committed to improving food security for vulnerable communities and individuals by providing income support safety nets and related services.

The Australian Government's *National Food Plan* white paper (2013) has 16 goals, grouped under four main themes:

1. *Growing exports*: Australia must grow exports and build market share against strong competition from others to make Australian food the food of choice globally.
2. *Thriving industry*: Australia must have a competitive and productive food industry through innovation, reliable infrastructure and a skilled workforce in making strategic investments to support a growing industry.
3. *People*: All Australians must have access to enough safe and nutritious food to meet their needs.
4. *Sustainable food*: Australia must produce its food sustainably.

In order to reach these goals, collaboration among all sectors (governments, farmers, fishers, businesses, researchers, consumers and communities) across the food system is needed. The development of the *National Food Plan* aims to position the food system for the future towards 2025.

*Eat Well Australia (EWA)* (2001) is a national framework for population based action in public health nutrition for all Australians. *EWA* inherited previous work completed under the 1992 *Food and Nutrition Policy*, and aims to build on the broad inter-sectoral support received by the 1992 *Food and Nutrition Policy*. *EWA* was developed over 1999 to 2000 with two rounds of consultations, public submissions and seminars in major centres. *EWA* has benefited from the experience



and expertise of a wide range of professional interests, in all sectors: governments, private industry, non-government organisations, research and teaching centres, community and Indigenous organisations. It has also been able to build on other national public health strategies, including *Acting on Australia's Weight*, *Active Australia*, the *National Breastfeeding Strategy* and the *National Action Plan on Vegetables and Fruit*. Most importantly, *EWA* sets out to learn from, build on, support and extend the existing state and territory food and nutrition strategies. The *SIGNAL EWA Working Group*, the *Vegetables and Fruit Working Group* and the *National Obesity Prevention Group* have all contributed to a set of 26 'whole of population' initiatives covering priorities in health gain and capacity building.

The purpose of *EWA* (2001) is to improve the health of all Australians through better food and nutrition. Obesity, high fat intake, low consumption of fruit and vegetables and smoking are rated as the most important preventable causes of ill health in Australia. Thus, strategies are needed to improve the diets of Australians in order to reduce health care costs and improve quality of life. One of the strategic directions under the framework for public health nutrition is the promotion of fruit and vegetable consumption in which the recommended daily consumption of fruit and vegetables should be five serves of vegetables and two serves of fruit. Strategic management (including steering and development) is also included in the *EWA* framework; as are developing nutrition policy and resources and monitoring progress in food and nutrition.

The *National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (National Aboriginal and Torres Strait Islander NSAP)*, National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (2009) has been developed by the Australia government as a key component of *EWA*. The *National Aboriginal and Torres Strait Islander NSAP* aims to improve Aboriginal and Torres Strait Islander health and wellbeing through better nutrition, such as making healthy food choices easier irrespective of location. The *National Aboriginal and Torres Strait Islander NSAP* highlights a wide range of issues, including food supply and food security and notes that access to good quality, affordable, healthy foods, particularly fresh fruit and vegetables in remote areas should be improved. Financial support, which helps

to overcome the issues of food access and availability, is given to low income Indigenous families as most of the Aboriginal and Torres Strait Islander Australians are found to be at greater risk of food insecurity than other population groups.

One approach that can be an effective way to increase the access and supply of affordable and nutritious food is the development of local food systems (DAFF, 2012). Local food systems form when food is locally produced and grown and minimise the distance food is transported. In addition, food purchased and consumed locally indirectly reduces the food price. The stability of local food systems can assure residents in particular areas access to sufficient and affordable healthy food, indirectly solving the problems of food insecurity.

Food labelling is another aspect of food security and is supported by the *Food Alliance* (Food Alliance, 2011) with the development of a *National Nutrition Policy*. Food labels such as nutritional information enable people to understand food nutrition so that they can make smart purchase choices. For example, the front-of-pack (FOP) food labelling system allows consumers to read the Daily Intake Guide, sugar and fat content of a product, which is important for energy-dense nutrient-poor snacks (Carter et al., 2013). Nutrition information panels inform the consumer about the nutrients per serving, quantity of serves per package, and size of one serve. In Australia, all food labels must conform to the *Australia New Zealand Food Standards Code*. In order to meet the requirements of the codes, all food labels must include the name and a description of the food; an identification of the lot number (food recall information); the name and Australian street address of the supplier of the food (food recall Information); a list of ingredients; a date mark; a nutrition information panel; the country of origin of the food; and a warning and advisory statement (SecondBite, 2014). This can help consumers to avoid picking unhealthy foods when purchasing food. Types of food labels play important roles in determining consumer understanding of nutrition. A consumer-friendly food labelling design and system offers consumers a good way to easily interpret the food nutrition (Crowe, 2009; Mhurchu & Gorton, 2007), thereby help to promote nutritious food intake and encourage healthy diets among consumers. A French study on the perception of FOP labels has shown that labelling food with a simple

‘traffic light’ design is the most appropriate approach that increases the awareness of healthy eating among consumers, particularly groups with poor nutritional knowledge and little interest in the nutritional quality of packaged foods (Méjean et al., 2012). The food labelling system has its merits in helping consumers identify healthier food options (White & Signal, 2012), however the use and understanding of the nutrition information on food labels is mainly related to the consumer’s interest in healthy eating and their existing nutritional knowledge (Grunert et al., 2010). These factors (interest in healthy eating and knowledge of nutrition) are in turn, influenced by demographic factors, such as gender, age, social status, having children and Body Mass Index (BMI).

In Tasmania, the Tasmanian Government has recognised food security as an issue that needs to be addressed. The *Tasmanian Food and Nutrition Policy* (DHHS, 2004) provides a framework for promoting a healthy and safe food supply system for Tasmanians with a vision to make “Tasmania a state which produces quality, healthy, safe and affordable food, while sustaining the natural environment and strengthening the local economy: a community empowered to make food choices that enhance health and well-being” (DHHS, 2004, p. 33). The *Tasmanian Food and Nutrition Policy* aims to improve food security by providing enough quality food for all Tasmanians.

### **2.7.2 Government and organisations in Australia**

As a multicultural country, the Australian Government is responsible for the health care and wellness of people from different cultures and to do so it cooperates with other government sectors and private organisations. *Multicultural Health*, part of the Tasmanian Department of Health and Human Service (DHSS), DHHS (2012) is one example. *Multicultural Health* plays a role in improving the health and wellbeing of people from culturally and linguistically diverse backgrounds in Tasmania by collaborating with community and government departments to focus on the needs of people with different cultural backgrounds, especially migrants and refugees. *Multicultural Health* helps to monitor the health conditions of people with different cultural backgrounds in Tasmania. Due to factors such as communication barriers, ethnocentric cultures and difficulties in accessing appropriate services,

migrants are likely to experience a decline in their health when they first move to Australia. Thus, through the DHHS, the Tasmanian Government provides help to improve the health condition of migrants in Tasmania.

*VicHealth* (the Victorian Health Promotion Foundation) is another example at the state level (VicHealth, 2012). *VicHealth* focuses on promoting good health, preventing ill-health and improving the health of all Victorians, while reducing the variations in health status between different population groups. *VicHealth* works with organisations, communities and individuals to make health a central part of their daily lives. One of their strategies is the promotion of healthy eating which can reduce the barriers and multiple factors identified as contributing to food insecurity. The majority of their healthy eating work has had the aim of improving the food security of people from other countries. For example, the development of a *Welcome Kit* as part of the *Food for All Program*. The easy-to-use *Welcome Kit* was developed by the *Food Council* in Brimbank City (western suburbs of Melbourne) to assist residents who are new-comers and from refugee backgrounds to familiarise themselves with the fresh fruit and vegetables available as well as healthy and safe food practices (VicHealth, 2008). The *Welcome Kit* is easy to read and has photos of common local fruit and vegetables, as well as instructions on how to buy, prepare, cook and store the fruit and vegetables. The kit helps new arrivals and refugees to buy and use Australian produced fruit and vegetables, and so also improves or maintains their general health whilst in Australia.

The TFSC has been established with the aim of developing and strengthening Tasmania's food security and building a sustainable food supply system for all who experience barriers to food security and to ensure there is enough access to nutritious, fresh, culturally appropriate and locally produced food (Tasmanian Food Security Council, 2012). The TFSC has developed a strategy to "increase access to and supply of affordable and nutritious food and community driven approaches to food security for Tasmanians most at risk" (Tasmanian Food Security Council, 2012, p. 6). *Food for All Tasmanians* is a project framework created by the TFSC with the aim of increasing local food access using four strategies: increasing food access and affordability; building community food solutions; regional development and

supporting food social enterprise; and planning for sustainable local food systems. All four strategies aim to improve food availability, accessibility and affordability as well as ensuring the food security of the Tasmanian population.

### **2.7.3 Home/community gardens**

In addition to the policies and work done by government (state and federal) and other organisations, a strategy which is often promoted as a solution to food security is home or community gardens. A wide range of literature shows that home or community gardens can make substantial contributions to food security (Carney et al., 2012; Fieldhouse & Thompson, 2012; Gray et al., 2014; Kortright, 2011; Porter & McIlvaine-Newsad, 2013; Taylor & Lovell, 2014). Home gardening is a practice which connects food, nature and community. It not only brings financial and health benefits to those who participate, but also strengthens relationships among family and community members (Gray et al., 2014). Home gardening is also particularly beneficial to migrants who relocate to new places and take their own cultural practices with them. Although community gardening holds the same attributes as home gardening, home gardening is easier to establish compared to community gardening. Home gardening (growing edible produce such as fruit and vegetables) can be done in a garden, backyard or private property around a residence. Home gardening has effects on the participant's health, finances and community relationships (Gray et al., 2014). Home gardens are reported to not only change eating habits, with a shift towards higher vegetable consumption, but also to provide a healthy opportunity to engage in a more active lifestyle. Home gardening is a sustainable strategy to improve food security while increasing household income, if the gardens are well adapted to local agronomic and resource conditions, cultural traditions and preferences (Midmore et al., 1991). Home and community gardens can help to generate enough produce to provide an essential supplement to the household requirements for fruits and vegetables.

Community gardens are spaces where socialising and collective activities allow gardeners to build social networks and provide social support (Gray et al., 2014). Community gardens are part of community-based food systems which provide sustainable production and benefits for communities (Markow et al., 2014).

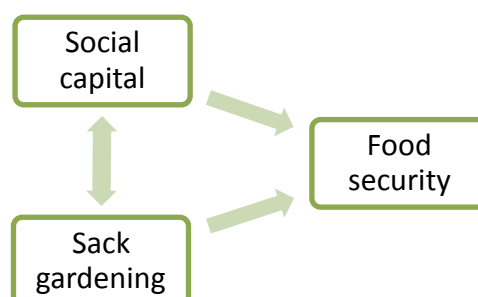
Community gardening can be a community effort, where time, money, knowledge and skills are shared among local residents, with the aim of enhancing the food supply of the contributing households (Porter & McIlvaine-Newsad, 2013; Tasmanian Food Security Council, 2012). Community residents participate in the garden activity mainly for food security and leisure benefits (socialising and meeting new people), Porter & McIlvaine-Newsad (2013). Carney et al. (2012) indicated that gardening provided many health benefits to both adults and children where there was nearly a four-fold increase in vegetable intake among adults and a three-fold increase among children. Owners manage to grow their own plants not only for their own household use but also share their produce with neighbours and friends. In Eastern Cape (South Africa) home gardens become a place for crop production for home consumption. If there is any extra produce, it is used for food bartering or exchange as gifts and favours among social networks, such as relatives, friends or neighbours. The project *Incredible Edible Todmorden* in the town of Todmorden (United Kingdom) produced low-carbon food for the local community, as well as re-connecting people with their town, their food and each other (Australian Food Sovereignty Alliance, 2013; Incredible Edible Todmorden, 2013).

Another example is the use of the farm as a strategy to combat food insecurity among African Americans. The Detroit Black Community Food Security Network has used farming as a strategy to improve food security among the Detroit black community (White, 2011). The farm (community garden) has created communal and social spaces where people can interact and have the opportunity to access healthy food, learn about healthy eating as well as receiving health screenings and services. In addition, the farms are used as places to learn a new food language, such as food labels and food nutrition. This is particularly important for low income African Americans because many experience difficulty in reading and interpreting the information on the nutrition labels printed on packaged foods due to low literacy skill. Moreover, the farms also offer workshops and training sessions, such as cooking and cultural food preparation demonstrations.

In addition, gardens are valued as sites that maintain and enhance cultural and personal identity, which is often deeply rooted in a particular ethnic tradition (Gray

et al., 2014). Garden management and production can represent personal preferences and traditional cultural practices. Community gardens enable individuals and families from different ethnic groups to interact and form cultural connections. They promote social capital, interactions and social inclusion (Firth et al., 2011) and can lead to the removal of potential barriers among community members where people, particularly recent migrants, can help each other to overcome obstacles. A study by Kortright (2011) in Toronto (Canada) found that household food growing contributed to food security which in turn led to secure health and wellbeing by encouraging a more nutritious diet and facilitating the consumption of culturally appropriate foods. These findings were supported by Marsh (1998) who stated that home gardening contributes to household food security by providing direct access to food that was consumed by the family on a daily basis. Produce from home gardens contributes to the access to fresh food and traditional food ingredients as well as increasing household income. Home gardening can provide a diverse range of fresh foods that supply adequate nutrients and improve a family's general health. Participants of gardening often gain gardening skills, organisational skills and social networks. It is said that gardening not only provides fresh produce, but it is also a good physical activity for the participants and indirectly strengthens relationships among family members and social relationships in the community. This is especially essential for migrants who leave their home countries and lose their social network (Bathum & Baumann, 2007). The *Helen Keller International* (HKI) is a successful home gardening project in Bangladesh which managed to improve the health condition of families in Bangladesh by increasing the quantity and quality of nutrients in their daily food consumption. Home gardening by migrants is a useful way to source ingredients for traditional cuisines which are often difficult to obtain from local supermarkets or stores (Longhurst et al., 2009). It can be concluded that home gardening not only helps to improve food security, but also improves the participants' physical health and strengthens relationships within the community.

In addition, sack gardening is an urban agricultural practice where vegetables such as Kale and Swiss chard are grown in limited spaces by planting crops into both the top and sides of the sack (Gallaher et al., 2013).



**Figure 2.4: Relationship between social capital, sack gardening and food security (Gallaher et al., 2013, p. 392)**

Figure 2.4 shows the relationship between social capital, sack gardening and food security. Social capital refers to the social networks and relationships that exist within communities and is associated with improved wellbeing including food security; and sack gardening is associated with greater household food security. Social capital and sack gardening are interrelated. Participation in sack gardening produces greater social capital: people have the opportunity to share the produce and build up relationships within the community. A greater sense of trust and cooperation between households and neighbours is built through sack gardening. Home and community gardens create a social network where people share food and so avoid situations of no food or the reliance on coping strategies such as reducing portions or skipping meals.

#### **2.7.4 Collective/Community Kitchens (CKs)**

Collective Kitchens or Community Kitchens (CKs) are community-based cooking programs which are formed by small groups of people cooking large quantities of food (Engler-Stringer & Berenbaum, 2005) and are designed to enhance the knowledge and skills of individuals in food selection, shopping and preparation, as well as improving their food accessibility. CKs have been identified as a useful tactic to improve food security which is highly recommended and has been widely applied in Canada for many years (Engler-Stringer & Berenbaum, 2005, 2006, 2007; Food



Security Network of Newfoundland and Labrador, 2009; Vahabi & Damba, 2013). CKs have successfully attracted and reached those population groups who face the greatest health inequalities and who are most vulnerable to food insecurity, such as indigenous people, newly arrived migrants and refugees, people with disabilities and people from low socioeconomic backgrounds (Lee et al., 2010). The main reason for participation in CKs is financial (Engler-Stringer & Berenbaum, 2007). CKs are treated as sources of food-related knowledge and skills (Engler-Stringer & Berenbaum, 2006). Participants learn about new foods, the nutritional value of foods, new cooking methods and share food safety information. Additionally, participants also learn tips for better grocery shopping such as reading food labels and bulk buying. As a result, the nutrition and cooking-related self-confidence of participants increases. CKs educate migrants about the available foods, give them tips for effective use of food resources, and also provide social support and help develop social skills. The community ties and networks can effectively combat social isolation among the poor and food insecure population. CKs facilitate conversations about health determinant issues including income and employment, and encourage social support networks aimed to help people cope with stress.

Some behaviour changes that are the result of participation in CK programs include an increase in the variety of foods in the diet, an increase in the consumption of vegetables and a reduction in fat consumption, these all combine to give a more healthy eating style (Engler-Stringer & Berenbaum, 2006). Researchers have discovered five main benefits that are gained by participants of CKs: large quantities of food are prepared; food security is increased through cost saving; access to better quality food and variety; dignity and acceptability; and a reduction in psychological stress (Engler-Stringer & Berenbaum, 2007). There are another three benefits participants gain from CKs are improvements in their cooking skills, social interactions, and nutritional intake, which indirectly increase their food security level (Iacovou et al., 2013). However, participation in a CK does not necessarily have a long-term effect on food security. The disadvantaged or vulnerable population may not be attracted to the program due to economic, psychological and structural barriers. The cost of transport is a barrier which can also inhibit participation in this

type of program (Lee et al., 2010). The cost of travel to the CK may become a burden to participants if they live a long way from the CK. Lee et al. (2010) identified a number of barriers and enablers in terms of establishing and sustaining a CK. A sustainable CK was one which had an accessible kitchen and equipment, and a socially comfortable environment. Other programs running concurrently to the CK also proved useful in attracting participants to join the program. A sustainable CK employed methods to minimise financial costs such as food donations and assistance with community gardens. The willingness of participants to engage with CKs is one of the success factors of CK programs. Good planning and support from the CK project team was also keys to ensuring the establishment and sustainability of a CK. Four barriers to the establishment and sustainability of CKs were identified by Lee et al. (2010): the size of the kitchen; finding volunteers or facilitators; shopping and cooking barriers; and transportation.

### **2.7.5 Other alternatives**

Apart from the strategies discussed above, there are other alternative methods to improve food security and the food environment, such as the development of community food-based resources in the US, and other practical intervention programs in Australia. In the US, three stages of work on the food environment are recommended (Anderson, 2012). The first stage focuses on bringing people who currently lack access to healthy food (particularly rural people) closer to the food supply (Creamer & Dunning, 2012) by providing, for example, transport or food infrastructure for them to reach places where healthy food is sold, and through *Volunteer for Veggies* by trading work hours for a bag of food from a farm or garden. The second stage is more targeted to bring healthy food to people who need it by increasing food production in inner-city areas, distributing more fresh healthy food to local food supply outlets, and promoting supermarkets to low income individuals, so that persons vulnerable to food insecurity can access healthy food without having to travel long distances to shops. Community-based food resources such as food banks can be provided for those who need to have regular access to sufficient food (Green-LaPierre et al., 2012). The final stage is the participatory redesign of the location of housing with affordable food production

and access, the purpose being to ensure that the areas with residents who are most likely to be food insecure have healthy food available locally. One example is Orchard Garden in the US, where affordable housing and food access organisations came together to build an environmentally sustainable neighbourhood.

There are other practical intervention programs in Australia which aim to promote healthy eating and increase health of Australians. For example, *SecondBite* which has been launched nationally in Australia aims to provide access to fresh, nutritious food for people in need across Australia (SecondBite, 2013). *SecondBite* cooperates with communities, established major retail chains (such as Coles), independent fruit and vegetable stores and other food business to redistribute fresh food produce, build community capacity in food skills and nutrition, and is an advocate for an end to food insecurity. *SecondBite* supports the homeless, women and families in crisis, at-risk youth, Indigenous communities, the long-term unemployed, people with disabilities, asylum seekers and new arrivals through its community food program. In Tasmania, 170 community food programs received 655,843 kg of redistributed fresh food in the year of 2013. 56% of this food was from farm gate collections, with the remainder donated by supermarkets, distributors, retailers and other sources. *SecondBite* has been recognised by the Tasmanian government as being a major contributor to the emergency food relief effort and it has helped to support those who are in need financially. With 34% of Tasmanians on some form of government benefit and the highest state unemployment rate in Australia, *SecondBite* has established food hubs, supported breakfast programs, delivered food hampers and established community gardens (SecondBite, 2013).

There are also various community programs aiming to improve food security in Tasmania. The *Healthy Options Tasmanian (HOT)* program was used by the DHHS and Eat Well Tasmania to help schools improve the food choices available at eating establishments within the school community (Australian Indigenous HealthInfoNet, 2013). Schools were able to benefit from this initiative through the reinforcement of nutritional messages within the business sector. Tasmanian food outlets were encouraged to provide healthy options in their menus through the *HOT* program.

There was an increase in demand from the public for healthy alternatives to traditional takeaway food.

Attention is also given to school children and ensuring their health. The *Cool Canteen Accreditation Program (Cool CAP)* is a school canteen program run by the Tasmanian School Canteen Association, that offers a model of best practice for canteen management (Tasmanian School Canteen Association, 2011). The program addresses major health and wellbeing issues around the provision, preparation and safe service of food for all members of a school community. The *Cool CAP* program enables healthy choices to become easy choices for both students and staff. It aims to promote high standards of hygiene and a safe food preparation environment; to increase the availability and promotion of healthy food to the wider school community; and foster an ongoing commitment from the school through the development of canteen policy (guidelines and procedures) and the maintenance of canteen accreditation. The promotion of good health outcomes for all students and staff complement the broader aims of the *Tasmanian Food and Nutrition Policy*.

*Eating With Friends (EWF)* (Neighbourhood Houses Tasmania, 2014) is a Tasmanian social eating program which aims to bring the elderly together for a nutritious meal and to socialise. Indirectly, *EWF* can reduce social isolation, improve well-being and build community capacity. Communities and volunteer groups work together to organise and run regular group meals. The first group started in West Moonah in 2000. There are a total of 37 *EWF* groups currently being run by different community groups and organisations around Tasmania.

The *Family Food Patch* program aims to improve the health and wellbeing of Tasmanian children and families through better nutrition and more physical activity (Family Food Patch, 2014). Through the program, families and local communities develop and mobilise skills in children's nutrition, physical activity and community action. Well-trained family food educators including volunteer parents and community members, address the common food and physical activity concerns of parents in their local community. The *Family Food Patch* program is delivered in

partnership between the Child Health Association of Tasmania, and Population Health (DHSS).

Additionally, there are on-going support programs available across Tasmania. The Salvation Army has provided Doorways centres across Tasmania (Salvation Army, 2014a). Salvation Army Doorways provide different services including emergency relief, financial counselling, family counselling, emotional support, employment services, literacy and language skills, crisis accommodation and others. For example, the Hobart Citadel Doorways gives support in terms of material aid, emergency relief, budgeting and advocacy (Salvation Army, 2014b).

Asylum seekers, refugees and migrants are a diverse and extremely vulnerable group who may speak little or no English, are uncertain about the future and may not have the support of family or the community in Australia. Many of them are at risk of poverty, malnutrition and social isolation. The Red Cross provide one-off financial or material assistance to asylum seekers, refugees and migrants who are suffering financial hardship and who are not eligible for other support (Red Cross, 2014). The Red Cross *Emergency Relief* program works in collaboration with other community services, including government funded programs. So far, Red Cross staff and volunteers have helped more than 4,500 people across Australia. Other than financial assistance, support also includes food packages, household goods, cooking classes, gardening workshops, transport vouchers, and oral care.

*Morton's Place* is operated by City Mission and has served the Launceston community for the past 50 years providing around 80 to 90 meals a day to patrons who are marginalised, socially isolated and disconnected from their community (City Mission, 2014). Other than meals, support is also given through building positive relationships, offering friendship, a listening ear and referrals to other community programs to help their patrons face other challenging circumstances in their lives. City Mission also operates *City Kitchen* in Burnie and Wynyard providing food to lonely, hungry and homeless individuals and marginalised families.

Anglicare Tasmania (Anglicare, 2014) is another non-profit organisation providing a wide range of community services to the people of Tasmania. Anglicare advocates

for social justice and helps people in times of need. Programs relating to health, accommodation, families, substance abuse and more are offered throughout Tasmania.

*Foodbank* is the largest hunger relief organisation in Australia (Foodbank Australia, 2014). In 2013, *Foodbank* provided enough food for 32 million meals. In Tasmania, *Foodbank Tasmania* is a non-denominational, non-profit organisation which sources donated and surplus food from the food and grocery industry to distribute to welfare and community agencies that provide food assistance to people in need. In the year 2013-2014, 344,000kg of food and groceries were distributed to over 100 welfare organisations and 30 schools, the equivalent of a 1000 meals every day.

*Produce to the People* (Produce to the People Tasmania, 2014) is a community capacity building, local food waste and food security project. Within the ethos 'grow, gather, give' *Produce to the People* aims to gather produce from backyard gardens, farms and local food suppliers and give it to those most vulnerable groups in the North West of Tasmania. In 2014 over 18,000kg of locally grown food was gathered which helped feed an average of 500 people a week via partnerships with 25 local schools, community houses, and agencies such as St Vincent de Paul, the Salvation Army and assisted accommodation services.

### **2.7.6 Coping strategies**

In contrast, other alternatives to enhance food security focus on personal changes or acculturation. The Tasmanian Food Security Council (2012) identified the following coping strategies adopted by vulnerable groups: substitution, rationing, seeking increased resources through personal, family or community actions, accessing the welfare safety net, and simply going without the basics (Tasmanian Food Security Council, 2012, p. 19). For instance, people can substitute, supplement and modify recipes in their diet when they are facing problems obtaining the food ingredients they need (Renzaho & Burns, 2006). If they do not have time for food preparation and have a limited budget they can either choose food that is easy to prepare or buy healthy food in bulk when on sale. Furthermore, people who experience food insecurity can adjust their food habits by eating cheaper, less

preferred food and have smaller portion sizes; these are the three most common coping strategies identified by Akerele et al. (2013). Olayemi (2012) also identified a reliance on less preferred and cheaper food, and eating less food as coping strategies employed by households experiencing food insecurity in Nigeria. Gallaher et al. (2013) found that low income Hawaiian residents employed food security strategies such as carefully budgeting, shopping only at sales and shopping in bulk, to cope with their food security problems. Other strategies involved reducing the quality and quantity of food including skipping meals, and cutting down on meat, fruit or vegetables due to their high cost (Lê, Auckland, et al., 2013).

Social networking and support are also important to help people survive when facing food insecurity. They can seek support from their friends, neighbours or the community to obtain food when they experience food insecurity (Fieldhouse & Thompson, 2012). Family and friends can play a critical role by providing transport to the food shops or by donating food to food insecurity groups (Green-LaPierre et al., 2012). Some individuals will approach emergency food relief services to address their immediate needs in a time of crisis (VicHealth, 2008). Alternatively, some will choose not to get any help, but will continue to live without certain food due to food shortages. They may tighten their budget on food and as a result have a poor quality diet (Green-LaPierre et al., 2012). These are some personal strategies that people use when facing food insecurity.

Skills in food preparation including cooking skills, new cooking ideas, new recipes and using unfamiliar ingredients can be introduced to promote healthy cooking and eating among migrants (Foley et al., 2011). The establishment of a multicultural resource centre can be helpful to refugees and migrants and serve as a knowledge base for newcomers to the community (Food Security Network of Newfoundland and Labrador, 2009). Through a centre, migrants can obtain information about local food and identify foods which are acceptable, healthy substitutes for cultural cooking. In Tasmania, the Migrant Resource Centre undertakes this role of assisting refugees and migrants (Migrant Resource Centre, 2011). The Migrant Resource Centre is a non-government, non-profit organisation which provides relevant services and resources to support migrants including their health and wellbeing. The

centre provides skills workshops and information sessions for new arrivals including English and cooking classes to increase their awareness and knowledge in the new country. Thus, it is noted that education about food knowledge and skills in food preparation and access play important roles in helping migrants become food secure, leading to a healthy life in the host country.

## **2.8 Theoretical framework**

### **2.8.1 The acculturation theory**

Acculturation is the adoption of the values and behaviours of the surrounding culture. It is a process of cultural and psychological change (Berry, 1990). According to Redfield, Linton & Herskovits (1936), “acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups” (p. 149). Simply put, acculturation involves migrants changing their attitudes and behaviours when they have continuous contact with the host population in a new country (Abraído-Lanza et al., 2006). Bhugra (2004b) and Padilla and Perez (2003) conceptualised acculturation as a social process that occurs in a context in which newcomers and members of the host culture are in dynamic contact with each other.

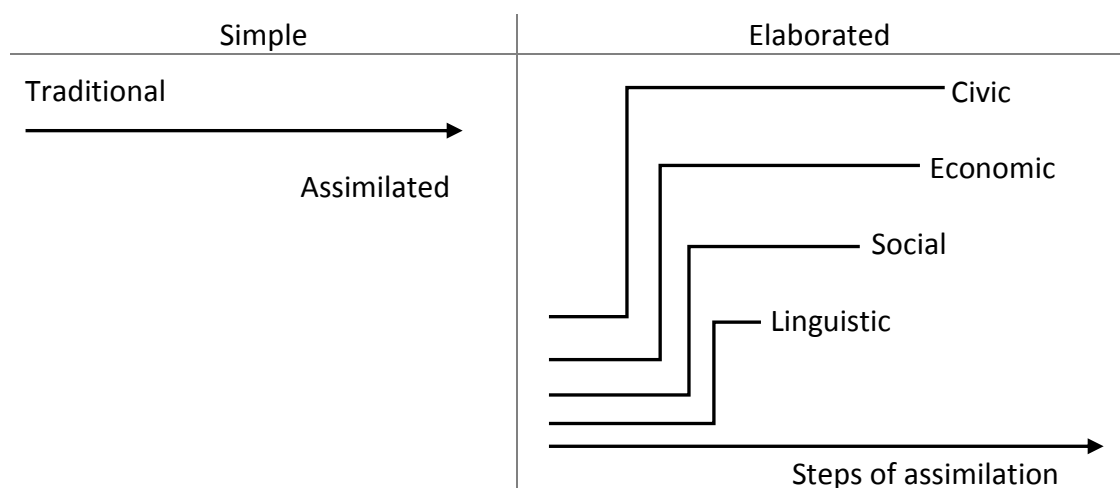
The definitions above frame acculturation as a group-level phenomenon. At its original level of concept, acculturation is the culture change of the group; in the latter, acculturation is a change in the psychology of the individual (Berry, 1997). Different scholars (Berry, 1970; Furnham & Bochner, 1986) argue that acculturation should be discussed at an individual level because acculturation is a change in the psychology of the individual. They claim that changes in individuals might vary greatly in degree if they are viewed as a group or an individual. Based on this perspective Arends-Toth & Vijver (2006, p. 34) offered another definition of acculturation focusing at an individual level: “changes that an individual experiences as a result of contact with one or more other cultures and of the participation in the ensuing process of change that one’s cultural or ethnic group is undergoing.” The



definition of acculturation which focuses on the individual level as defined by Arends-Toth and Vijver (2006) is applied in this study.

### 2.8.1.1 Models of acculturation

The dimensions or categories of acculturation in intercultural studies have been examined further in intercultural studies. There are two models of acculturation: the uni-dimensional model (UDM), shown in Figure 2.5, and the bi-dimensional model (BDM), shown in Figure 2.6. Initially, the UDM was designated as linear and directional. The UDM explains acculturation as a process of shedding the old culture and replacing it with a new culture (Flannery et al., 2001). This model represents acculturation as a set movement towards one end of the continuum with an equivalent reduction of the continuum behind (Cuellar et al., 1995). The main weakness of the UDM is that the two poles are not independently measured and therefore, for those who are bi-cultural, their scores in both cultures cannot be measured. According to the UDM the only outcome of acculturation is assimilation (Flannery et al., 2001). As Park explained, there are three simple steps: contact, accommodation and assimilation (Park, 1928). Although the UDM is called unidirectional, it can be elaborated and seen as multidimensional in the sense that the acculturation process involves many factors, such as linguistic, social, economic and civic factors (Flannery et al., 2001). Park's (1928) three stages model also claimed that cultural assimilation is irreversible and progressive. The acculturation process will cause the loss of the original culture.



**Figure 2.5: Simple and elaborated version of the UDM of acculturation (Flannery et al., 2001)**

Another well-known model of acculturation is Berry's acculturation strategies, or the so-called bidirectional acculturation model (BDM), which highlights two factors to achieve acculturation. The first is related to the continuity of cultural maintenance, while the second is related to the contact and participation with the host community. As shown in Figure 2.6, there are four acculturation categories, depending on the degree of the migrants' desire to maintain their culture and/or to identify with the new one.

		Maintaining cultural identity and characteristics	
		Yes	No
Maintaining relationships with larger society	Yes	Integration	Assimilation
	No	Separation	Marginalisation

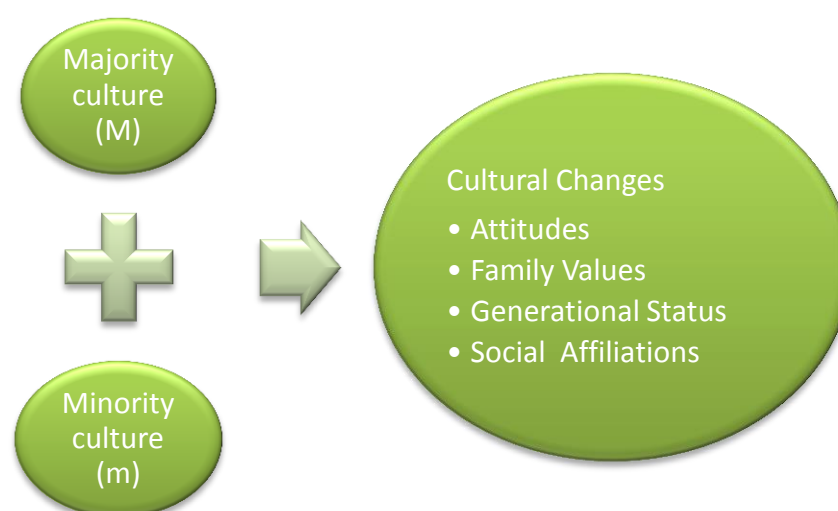
**Figure 2.6: Berry's acculturative strategies: Integration, assimilation, separation and marginalisation (Berry, 1990, 1997)**

Berry (1997) defined the functions of the four acculturation strategies according to how a non-dominant group or an individual responds to the two underlying questions. In the acculturation process, a non-dominant group or individual, who has an interest in both maintaining their cultural identity and having interactions with the host society, will adopt an integration strategy. They seek a balance of the two to integrate into the host society. When a non-dominant group or individual interacts to become part of the host society and de-identifies from their culture of origin, the resulting process is assimilation. In contrast, if the group or the individual does not want to have any interaction with local society and fully maintains their culture, separation will be the adopted strategy. Lastly, marginalisation occurs when a group or individual has no interest in maintaining their original cultural integrity and at the same time neglects to interact with the host society.

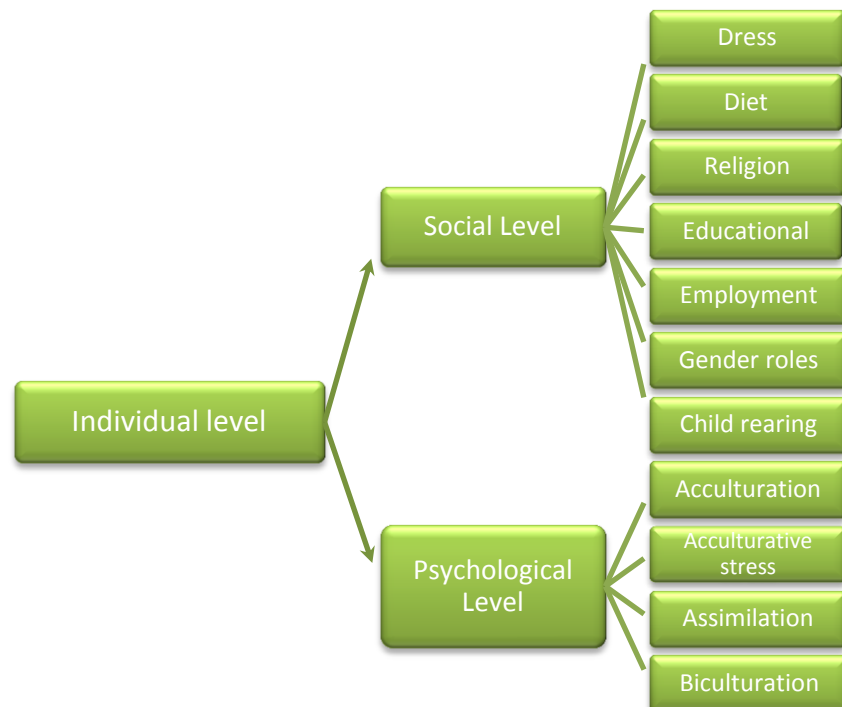
Within the four acculturation strategies, integration, as the positive adaptation, is the ideal strategy and marginalisation is the least preferred, while the separation and assimilation strategies are rated midway. Integration can be successfully pursued by the non-dominant groups which show interest in interacting with the

local society and the dominant society which is open to multicultural diversity and to meet the needs of all ethnic groups who live together.

The integration strategy contributes to changes in culture and from the individual perspective affects changes at the social and psychological level. Bhugra (2004b) proposed a model of cultural changes and individual acculturation level (Figure 2.7 and Figure 2.8 overleaf). Figure 2.7 shows that there is a change in culture when two cultures come in contact. Berry (2002) suggested that the process of acculturation is similar to the psychological model of moving towards, against and away from a stimulus. Both cultures (major and minor) may experience some changes. However, one culture will often dominate over the other. Individuals may respond to the changes to cultural identity in different ways at different levels. Figure 2.8 shows the two levels of components (social and psychological) that make up an individual's acculturation level. At the social level, there are seven identified domains: dress, diet, religion, educational, employment, gender roles and child rearing (Bhugra, 2004b, p. 135). An acculturation in these seven domains may result in changes in the social level of an individual. At the psychological level, the components are acculturation, acculturative stress, assimilation and biculturation.



**Figure 2.7: Cultural changes resulting in acculturation, adapted and modified from Bhugra (2004b, p. 135)**



**Figure 2.8: Individual level of acculturation, adapted and modified from Bhugra (2004b, p. 135)**

### **2.8.1.2 The process of acculturation**

Redfield et al. (1936) highlighted three simple steps in the process of acculturation: selection, determination and integration. An individual will either accept the new culture overriding his or her previous culture including behaviours and inner values or adapt to the new culture where the two cultures combine to be harmonious and meaningful as a whole (Redfield et al., 1936). In fact, acceptance of both new and original cultures depends on the individual (United Nations, 1949). From a psychological point of view, there are new approaches to that enable a better understanding of acculturation in four areas: social cognition, cultural competence, social identity and social stigma, that interconnect to influence acculturation and the adaptation of a migrant to a new culture (Padilla & Perez, 2003). The social identity of a migrant to a new environment influences their social cognition which guides their behaviour in choosing what to wear, what food to eat, what people to socialise with, what values to adhere to and the strategies for integration with the new culture and people.

Changes in values, behavioural norms and attitudes can occur as a result of migration (Rissel, 1997) and normally happen when a group of people with different cultures come into contact with one another continuously for a long time. Migrants bringing different cultural practices, cuisines and lifestyles to the new country face challenges in acculturation between their original practices and the new practices. However, some practices may not travel easily across cultural boundaries and local people may not accept the practices migrants bring with them. Thus, migrants need to acculturate themselves to the new culture, adapt to the new country and find a way to engage in the new environment (Longhurst et al., 2009).

### **2.8.1.3 Diet acculturation**

Diet acculturation refers to changes in food habits after migration. When migrants adopt the eating patterns or food choices of their new environment, their diet changes and this process is called dietary acculturation (Patil et al., 2009; Satia-Abouta, 2003). Dietary acculturation can be described as a dynamic process whereby people do not necessarily move linearly from one end of the acculturation continuum to the other (Garnweidner et al., 2012). Dietary acculturation happens due to some factors such as perceptions of the host country's food culture, the availability of ethnic food items, unfamiliarity with food in shops, food cost, religious dietary rules and the preferences of family members (Colby et al., 2009; Garnweidner et al., 2012; Terragni et al., 2014). Wilson and Renzaho (2015) indicated that dietary acculturation was characterised by children's preference for Australian foods and rejection of traditional foods. As such, a decrease in fruit consumption and an increase in fast food consumption have been found among migrants' diets because of availability and cost (Colby et al., 2009; Okafor et al., 2014). In a study on changes in dietary habits of Samoans in Queensland, Australia, a significantly less vegetables consumption and more discretionary foods were found in this migrants population (Perkins et al., 2015). Changes in dietary patterns, specifically the adoption of western dietary food habits, and the alteration of cultural food ingredients may lead to health problems such as obesity, cancer, cardiovascular disease and others (Colby et al., 2009; Okafor et al., 2014; Wahlqvist, 2002). Various chronic diet-related diseases appear when migrants change their

diet. However, there is a study reporting on the positive dietary practices among Asian immigrants in Canada, where there is an increased consumption of fruit and vegetables and improvements in food preparation (Lesser et al., 2014).

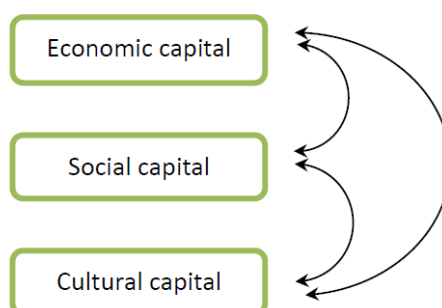
The length of time migrants stay in the host country has been shown to negatively impact dietary behaviours. When they acculturate into the new food culture, it results in a decrease in their health (Rissel, 1997). Migrants who stayed in Australia five years and more were identified to experience food insecurity due to the changes in food habits (Gichunge et al., 2015). Migrants need to integrate the new diet with the original diet from their own cultures. Some retain their core food and add new food from the host country (Berry, 1990; Berry et al., 2002; Flannery et al., 2001). Burns' (2004a) study on diet acculturation among Somali women in Australia found that they changed their diets but retained the core traditional food in their daily lives. This demonstrates the development of bi-cultural eating patterns (Garnweidner et al., 2012). It is also shown that people with higher acculturation have better dietary practices and eat healthier (Peterman et al., 2011). As shown in Hmong adults living in the US, the longer they lived in the US the more likely they were to have increased levels of dietary acculturation (Franzen & Smith, 2009). Thus, the acculturation of an individual's diet or food habits in the new environment can be both an advantage and disadvantage to the health of migrants; it all depends on how the individual adapts to the new environment.

### **2.8.2 The notion of capital underlying food security**

Capital forms as a result of social accumulation (Bourdieu, 1986), when resources are generated by labour (Bourdieu & Wacquant, 1992). There are two types of capital that are of concern to in this study: cultural capital and social capital. Both forms of capital play an important role in enabling food security. Social capital is traced to three authors – Pierre Bourdieu, James Coleman and Robert Putnam. Each author has their own distinctive concepts of social capital with Bourdieu describing both social and cultural capital.

Bourdieu (1986) in his book *The Forms of Capital* identifies three types of capital: economic, social and cultural capital. Economic, social and cultural resources are

correlated and interact with one another (as show in Figure 2.9). The three capitals are interconnected with one another where one form of capital can transform into another. Bourdieu claimed that economic capital is the main root of the three capitals and social and cultural capital derive from economic capital. Commonly, economic capital is converted into cultural capital and then cultural capital translated into social capital. However, both social and cultural capital retain their own specificity. Interactions can also include intergenerational transmission of capital. For instance, parents invest their financial resources (economic capital) in their children’s education (cultural capital) which later may lead them to better paid jobs and increase their chances to be involved in powerful networks. The model suggests that these capitals affect people’s health through distinct patterns of interaction.



**Figure 2.9: Three forms of capital, adapted and modified from Abel (2008, p. 2).**

## 2.8.2.1 Cultural capital

### 2.8.2.1.1 Definition of cultural capital

Bourdieu expanded the scope of capital beyond economic capital to encompass cultural capital. Cultural capital can be broadly defined as the people’s symbolic and informational resources for action (Bourdieu & Wacquant, 1992). According to Throsby (2003), cultural capital is an asset which embodies, stores or gives rise to cultural value in addition to whatever economic value it may possess. In the SAGE dictionary of cultural studies, cultural capital is defined as “a social relation within a system of exchange that includes the accumulated cultural knowledge that confers power and status” (Barker, 2004, p. 37). Cultural capital refers to the form of

knowledge, skills, education, and advantages that a person has, which give that person a higher status in society. An individual's operational skill, linguistic style, values and norms are perceived through education and life-long socialisation (Bourdieu, 1986). Normally, cultural capital is associated with the education system and education is one of the determinants of cultural capital (Kim & Kim, 2009). For example, parents provide their children with cultural capital by transmitting the attitudes and knowledge needed to succeed in the current education system. The accumulation of cultural capital takes time. In addition, cultural capital encompasses a broad array of linguistic competencies, manners, preferences and orientations (Bourdieu, 1977). In simple terms, Bourdieu (1986) defined cultural capital as the competence of an individual in a high status culture: a person needs to be equipped with a wide range of knowledge, skills and ability in order to succeed in society.

#### *2.8.2.1.2 Types of cultural capital*

There are three variants of cultural capital: embodied state, objectified state and institutionalised state (Bourdieu, 1986). Firstly, the embodied state of cultural capital is incorporated in a person's mind and body which is usually inherited from their family through socialisation, culture and tradition. This type of cultural capital cannot be transmitted spontaneously but requires time for acquisition which depends on time, society and social class. Secondly, the objectified state of cultural capital simply exists as cultural goods or art forms, such as heritage buildings, books, artefacts, dictionaries or paintings which allow the individual to possess the ability to use the material objects which have been procured with capital (Bourdieu, 1986). Thirdly, the institutionalised state of cultural capital more often is in the form of the academic credentials or qualifications of individuals. Thus, cultural capital is shown to be non-materialistic and subjective which makes it difficult to accumulate and transfer (Kim & Kim, 2009).

However, Thorsby (2003) categorises cultural capital differently by grouping cultural capital into two forms: tangible and intangible. The tangible form of cultural capital refers to art-works and artefacts, such as paintings, sculptures, heritage buildings, locations and sites (this is the same as the objectified state of cultural capital



proposed by Bourdieu (1986)). The intangible form of cultural capital includes music, literature, inherited traditions, values and beliefs which constitute the 'culture' of a group, whether the group is defined in national, regional, religious, ethnic or other terms. Intangible cultural capital also exists in the cultural networks and relationships that support human activity, and in the diversity of cultural manifestations within communities. It is an important factor that supports the socialisation of individuals in a community and society. Accumulation of cultural capital has a limit and cannot progress beyond the capacities of the individual agent. The capital will decline and die with its bearer in terms of the individual's biological capacity and memory. Cultural capital can be measured by the amount of time devoted to its acquisition, as it is a time consuming process.

#### *2.8.2.1.3 The importance of cultural capital*

Cultural capital plays a role in influencing those who move to new places or countries, especially migrants. The cultural capital they acquire will affect the way they adapt to their life in the new setting. Embodied and institutionalised states and the intangible form of cultural capital will become the main aspects influencing migrants' acculturation in new settings. Cultural capital in the form of values, perceptions, knowledge and behavioural norms about food practices provides the non-material resources to develop food practices and deal effectively food security issue on everyday basis (Abel, 2008). Nutritional behaviour including knowledge about health effects of certain food products will structure people's food preferences, choices and eating habits. A study done by Goto and co-workers (2014) on children's healthy eating practices in rural Japan identified the role of cultural capital such as the preservation of traditional Japanese dietary habits and eating rules as a key to healthy feeding practices.

Cultural capital has a significant influence on migrants' food security, such as the way migrants access or prepare food in their host country (Bourdieu, 1986; Throsby, 2003). The inherited cultural beliefs and values of migrants make them culturally different from other groups, which presents challenges to migrants (Australian Institute of Health and Welfare, 2010; Rosier, 2011). As cultural capital is acquired through time, it is impossible for migrants to change their culture and adapt to the

new culture soon after arrival. While acculturating into the new food culture over time, migrants tend to retain their traditional food habits, such as cooking skills (Kruger et al., 2012). Academic qualification or education level is part of cultural capital and also acts as one of the factors in food security (Cannon, 2008; Rosier, 2011). The level of education contributes to improving food security and health, for example, knowledge about diet nutrition can help people have a healthy diet and lead a healthy life. Therefore, cultural capital plays an important role in determining the level of food security.

### **2.8.2.2 Social capital**

#### *2.8.2.2.1 Definition of social capital*

Social capital refers to the social networks and relationships that exist within communities. The social structures, institutions and shared values making up communities can be explained by the concept of social capital (Firth et al., 2011). Bourdieu's first definition on social capital was "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Bourdieu, 1986, p. 248). A 'glue' that holds society together is necessary for a functioning social order, along with common cultural identifications, a sense of belonging and shared behavioural norms. Social capital can be generated through social processes between the family and wider society which is made up of social networks. Social capital exists between individuals and the extensions accumulated by the individuals. Therefore, social capital can be described as an asset or a resource for the resilience of the community or individual (Ledogar & Fleming, 2008). As an individual asset, social capital exists when a person interacts with available social resources, and consists of attributes such as trust, reciprocity, collective action and participation in characteristics of the community (Ledogar & Fleming, 2008). The fundamental form of social capital is family (Fetherstonhaugh, 2000). The development of durable exchange-based networks of people in communities produces trust and shared values that are grounded in social networks (Gauntlett, 2011). Social capital is used at two levels of analysis: primary and secondary (Kunitz, 2004). Primary groups are family, friends and neighbours forming

networks or communities, and secondary groups include voluntary associations. The establishment of relationships with both primary and secondary groups can be purposefully employed to generate benefits in the short or long term.

Social capital can be represented in five broad dimensions (Bourdieu, 1986; Coleman, 1988; Onyx & Bullen, 2000; Paxton, 2002):

1. Network associations that vary in density and size, and take place among both individuals and groups.
2. The return of mutuality in short or long term kindness and services.
3. Trust-willingness to take the initiative or risk in a social context.
4. Social norms that lead behaviour and interaction.
5. Personal and aggregate efficacy actively and willing join the community.

These five dimensions demonstrate social capital in various combinations and form the interaction amongst the members of a group, organisation, community or society and can be studied through various perspectives.

#### *2.8.2.2.2 Types of social capital*

There are three types of social capital: bonding, bridging and linking (Putnam, 2000; Woolcock, 2001). Bonding social capital is defined as the strong ties between people who are in the same situation such as family members, close friends and neighbours; bridging social capital encompasses the more distant ties of like persons who have loose friendships or work relations, and linking social capital is the connectivity between unlike people (those who are entirely outside the community) in dissimilar situations (Putnam, 2000; Woolcock, 2001). The three types of social capital are all required to form a strong community. Putnam (2000) claims that bonding social capital has a narrower scope (exclusive) while bridging social capital has a wider scope linking external assets and information diffusion (inclusive). Bonding social capital acts as a sociological 'super glue' that provides strong ties between family and close friends, whereas bridging social capital provides weak ties which function as sociological 'water displacement' (analogous

to the action of WD-40®) (Putnam, 2000). Linking social capital can be viewed as a special form of bridging social capital that specifically concerns power (Paxton, 2002). The volume of social capital possessed by an individual depends on the size of the network of connections that they can effectively mobilise and the volume of other capital (such as cultural capital) possessed in their own right by each of those to whom they are connected (Bourdieu, 1986). Both social and cultural capital overlap to form 'cultural ecosystems' of shared cultural networks and relationships (Throsby, 2003).

Social capital cannot be identified as a single entity. James Coleman (1994) claimed that social capital "is not a single entity, but a variety of different entities, having two characteristics in common: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure" (p. 302). Fetherstonhaugh (2000) expands this idea of a variety of different entities but with two aspects in common. The first common aspect is that these entities evolve as part of social structure and the second common aspect is that they play roles in facilitating those involved in the social structure. The entities can be groups or individuals. Coleman defined social capital as having different dimensions that are defined by their functions, such as kinship, neighbourhood, horizontal and vertical linkages and ethnicity (Bastelaer, 2000; Putnam, 1995). The role of family, kinship networks and religious institutions in forming social capital is important. Social capital also refers to the norms and networks that enable people to act collectively. According to Putnam (1995), social capital refers to the "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (p. 67). Social capital stresses the quantity and quality of interpersonal ties (Fetherstonhaugh, 2000). Social capital is a public good as it does not belong to individual people. Putnam (2000) indicated that social capital is "the connections among individuals - social networks and the norms of reciprocity and trustworthiness that arise from them" (p. 19). Foster (2006, p. 529) also defined social capital as "the ways in which individuals and communities create trust, maintain social networks, and establish norms that enable participants to act cooperatively toward the pursuit of shared goals." Individuals build and form social

capital through interactions with other individuals in formal or informal groups. Interaction enables people to build communities, to commit themselves to one another and to form the social fabric. The concrete experience of a social network can bring mutual benefits to those coping with stress and those who are vulnerable, through a sense of belonging and networks, social trust and norms (Putnam, 1995). According to Putnam (1995), social capital makes life easier in a community. Campbell (1991) argues that social strategies such as sharing resources within the community is a common method of coping with food deficit. Social capital is a source of social control where it provides support and benefits through the networks. Resources or access to resources for those who are without, or information provided can influence the behaviour of individuals and are some of the advantages derived from social capital.

Social capital can be used more effectively and can lead to more positive effects as the network size gets bigger (Hawe & Shiell, 2000). A network of connections does not come naturally but requires an effort to build and can be said to be the product of investment strategies, individually or collectively, consciously or unconsciously with the aim to establish or reproduce social relationships that are necessary and elective (Bourdieu, 1986).

Coleman (1988) indicated that “social capital is comprised of two broad intellectual streams in the description and explanation of social action” (p. 95). Social capital brings significant benefits to human wellbeing (Putnam, 2000). Social capital facilitates the process of collective problem solving in cooperative groups. It allows communities to progress steadily when trusted and trustworthy people interact with one another and improves their part by broadening the awareness in many ways. Through the psychological and biological process, social capital networks act as a passage for the flow of helpful information to improve the life of individuals and their ability to achieve goals.

#### *2.8.2.2.3 The importance of social capital*

There are various factors that might build or influence social capital (Paxton, 2002), such as ethnic and social heterogeneity. Cultural and social differences in a society

may cause effects such as conflict and discrimination, which may be experienced by migrants when they move to a new place. According to Smith (2007), there is an inclination to move towards social solidarity due to immigration and ethnic diversity. The changes in environment force people with different ethnicities to begin to build a new social network in a new environment. Therefore, it is necessary for migrants or new settlers to link to social support networks, have their qualifications assessed and recognised, and gain access to financial institutions and other formal systems (Burnett, 1998). People with low social capital are more likely to experience food insecurity (Dean & Sharkey, 2011). Adler & Kwon (2000) distinguished three kinds of benefits from social capital: facilitating access to broader sources of information, gaining power and influence, and resulting in solidarity. In addition, Putnam (2001) proposes that there is a strong relationship between the possession of social capital and better health. When people join a group, organisation or club, they will be happier and their wellbeing will improve. Smith (2009) provides further evidence of the health benefits gained from social capital by identifying that regular involvement in organised groups significantly impacts individual health and well-being. Through strengthening social capital, better health can be fostered (Smith, 2007). Strong social capital promoted healthy child feeding practices where social support was provided mothers or mothers-in-law and fresh local food was sourced from existing social networks (Goto et al., 2014). Additionally, a study on healthy eating among Latinas also indicated that family interaction and support increased healthy eating behaviours (Schmied et al., 2014).

The chance to acquire health-effective cultural capital increases with the availability of other types of capital (Abel, 2008). Thus, it is important that social capital associates with cultural capital to enhance cultural capital. Social capital can increase the chance of accumulating cultural capital, such as gaining information about food through social network interactions. The importance of social capital for food security has been identified in previous studies (Bathum & Baumann, 2007; Martin et al., 2004; Tasmanian Food Security Council, 2012; VicHealth, 2008). The lower the social capital of an individual, the more likely they will be to experience

food insecurity (Dean & Sharkey, 2011). The support provided by social networks is also associated with health outcomes (Abel, 2008; Carpiano, 2007). Social networks are especially important for the mental health of migrants and their health behaviours that reflect their health beliefs (Kristiansen et al., 2007).

The social network contributes to enhance food security in the community (Borre et al., 2010; Tasmanian Food Security Council, 2012). Social capital is positively associated with food security where those who exhibited a higher level of social capital were less likely to experience hunger. Food security can be improved by sharing the food in the community or giving food to the needy (Fieldhouse & Thompson, 2012). One strategy that has been proven to be an effective method to combat food insecurity is community gardening which has been discussed earlier (Carney et al., 2012; Kortright, 2011). Community gardens have been shown to be sources of social capital that help to increase social cohesion, support networking and enhance the levels of social capital (Firth et al., 2011). There are four means in which community gardens generate social capital:

1. They bring people together with a common purpose to participate in an activity. This shows the social connections between people through participation in an activity.
2. They offer a meeting place where people gather, interact and contribute to the creation of community. Bonding social capital is created which increases ties between neighbours and individuals.
3. Activities such as the growing, cooking and eating of food in community gardens can help to build bridging social capital as it allows people of all ages, ethnicities and socioeconomic backgrounds with common interests to engage in the community.
4. They help to generate linking social capital by connecting the community with institutions and authorities. These external links enable resources to be accessed for the benefit of those directly involved with the community gardens.

Thus, the access to community gardens facilitated by the social capital of community leaders and citizens strengthens family ties and community intergenerational relationships through leisure, resulting in the environmentally just outcomes of environmental education (gardening knowledge) and healthy eating habits for all participants (Porter & McIlvaine-Newsad, 2013).

## **2.9 Conclusion**

This chapter provides a theoretical guide and reference to this study. There is literature available on the challenges facing food security in Australia and the food security problems of migrants, however there are still gaps in this literature and research. Firstly, few studies on food security have taken place in both urban and rural areas of Australia. This study has been conducted in Tasmania which is considered as regional. The findings emerging from this study would be different from other studies conducted in urban and rural areas in other parts of Australia and other countries. This can be considered as the first study about the food security of migrants in Tasmania. Secondly, studies relating to the food security of migrants tend to focus on one specific cultural group. The migrants in this study have a more diverse range of cultural identities. Thirdly, previous studies seldom consider social and cultural capital as factors that enhance the food security of migrants. Social and cultural capital is examined in this study to determine its role in enhancing the food security of migrants in Tasmania. The literature review indicated that there have been few studies investigating and identifying the various strategies used to improve food security. The key issues raised from the literature review have been addressed in this study. The different strategies used by governments, the private sector and migrants themselves with the aim of improving the food security of migrants in their new environment have been explored.



# Chapter 3: Methodology

## 3.1 Introduction

The previous chapter examined the relevant theoretical concepts, issues and findings present in the research literature and created a background for this study. The purpose of this study is to investigate the perceptions and experiences of migrants concerning food security in Tasmania and to identify the different coping and acculturation strategies that they use to become food secure in their new environment. The discussions and recommendations derived from this study may be useful for improving the food security of migrants and in accommodating the needs in Australia regarding food, in order to improve their diet and lifestyle.

A critical part of any research design is the acknowledgement and description of the methodologies and theoretical context of the research. Since the research methodology is a significant part of the research, it is crucial for the researcher to provide a methodological framework in order to guide the research process. On this basis, this chapter provides an overview of the research approach, methodological principles, target population, study locations, research instruments, and data analysis tools. Finally, the ethical aspects of the study are discussed.

## 3.2 Research design

Research design is an integral part of the research process. A well-planned research design can depict the whole research framework, from broad assumptions to detailed methods of data collection and data analysis (Creswell, 2009). Research design involves the organisation and implementation of a research project, from identifying research problems to reporting and interpreting data. According to Creswell & Plano Clark (2007), there are three areas which need to be addressed in research design. Firstly, the theoretical perspective that is used by the researcher in research design; secondly, the strategies of inquiry which include the approach to the research methodologies; and thirdly, the methods of data collection. In a strong and well-structured methodology the research approach, method and data

collection method are interrelated in the research design. Prior to the selection of the data collection method, the research approach needs to be determined. Once the research approach is determined, the research procedure can continue and focus on the method. Thus, the research approach should match the research aims and objectives, the study purpose and conceptual framework of the study.

There are three types of traditional research approaches which are widely used in social science research: quantitative, qualitative and mixed methods. According to Creswell (2005) the quantitative approach is employed to study research problems which require a description of trends or an explanation of the relationship between variables. The quantitative approach is a statistical investigation which involves the systematic collection, analysis and interpretation of data (Sverke, 2007). Thus, a quantitative approach is considered to be a deductive scientific method that tests a hypothesis or theory rather than generating a hypothesis. Different quantitative tools are available to collect numerical data and test an hypothesis (Creswell, 2009; Creswell et al., 2003).

The qualitative approach forms a “research that asks how or why to explore research topic areas from the participants’ descriptive perspective and thereby reach results and conclusions” (Matthews & Kostelis, 2011, p. 18). The qualitative approach is considered to be an inductive scientific method of exploring and discovering a new concept or phenomenon in a social setting (Creswell et al., 2003; Matthews & Kostelis, 2011). Therefore, the qualitative approach is designed to generate an hypothesis rather than to test an hypothesis (Creswell, 2009).

Descriptive and narrative findings can be collected through interviews to form new theoretical themes and concepts (Burns, 2000; Creswell, 2009; Neuman, 2011b).

However, in many cases research is not a simple process and needs both deductive and inductive methods, or quantitative and qualitative approaches, in order to obtain more comprehensive information. Indeed, the selection of a research approach depends on the research problem. As Creswell (2009) noted, the type of research problem needs to be addressed because different research problems necessitate different approaches. This study intends to examine the condition and

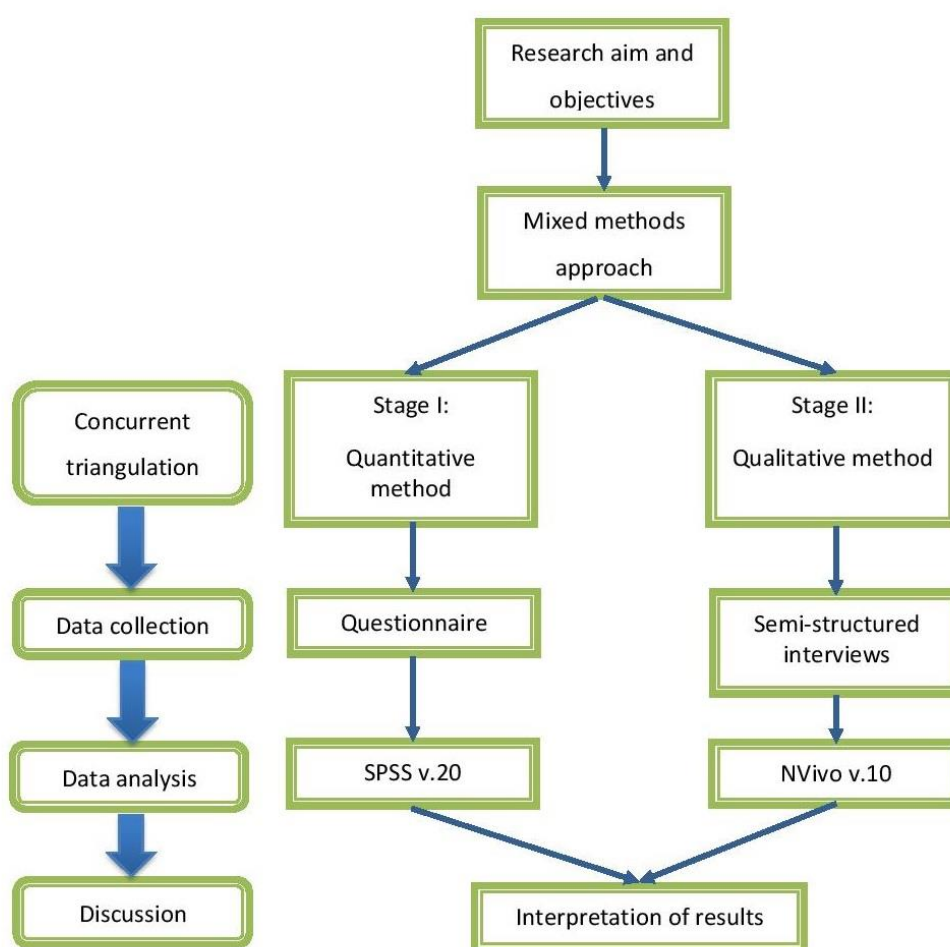
problems of food security experienced by migrants and to also explore the acculturation strategies used by migrants to achieve food security in their new environment. The complexity of the research issue dictates that multiple approaches can be used to fully explore the lived experiences of migrants. Moreover, any single method has limitations and biases in its own right. In order to overcome these limitations, the combination of both quantitative and qualitative methods can offset the disadvantages of using just one method. Furthermore, the use of combined research methods improves efficiency and produces both breadth and depth compared to using qualitative and quantitative methods independently (O'Cathain, 2010). There are five main advantages in mixed methods research as listed below:

- Triangulation. This is the use of more than one method to answer the same research question and allows researchers to gain more understanding from both statistical and narrative results. It is the convergence, corroboration and correspondence of results from different methods.
- Complementarity. This is the application of two methods to assess different aspects of the research question and the use of the findings of one method to elaborate or explain the findings of the other method. This allows researchers to gain a better understanding of research problems or to clarify a given research result from one method with the other.
- The development of another method, with the assistance of an existing method.
- Initiating the discovery of paradox, where the findings from one method created a contradiction or questions for clarification.
- Expansion. The breadth of a study can be expanded using different methods for different components of the study. This may result in a new investigation and the discovery of a completely new social research topic.

(Greene et al., 1989)

Considering the advantages of using quantitative and qualitative methods as discussed above, a mixed methods approach is employed to investigate this study. Furthermore, a research on the experiences of food security in different Tasmanian settings done by Tasmanian Food Access Research Coalition (TFARC) (Lê, Murray, et

al., 2013) used mixed methods approach which becomes reference for this study in selecting research approach. A quantitative approach can make generalisations about the food security of migrants in Tasmania, while a qualitative approach can validate and interpret the information obtained from the quantitative approach. A mixed methods approach offers an opportunity for representing a greater diversity of divergent views (Matthews & Kostelis, 2011). Simply, mixed methods research is the combination of quantitative and qualitative research approaches that enables the examination and identification of broader and more underlying ideas, and provides the opportunity to gain deeper insights into the views of participants concerning the research question (Collins et al., 2007). Therefore, a mixed methods approach is considered the most suitable approach for this study. A summary of the research design is shown in Figure 3.1.

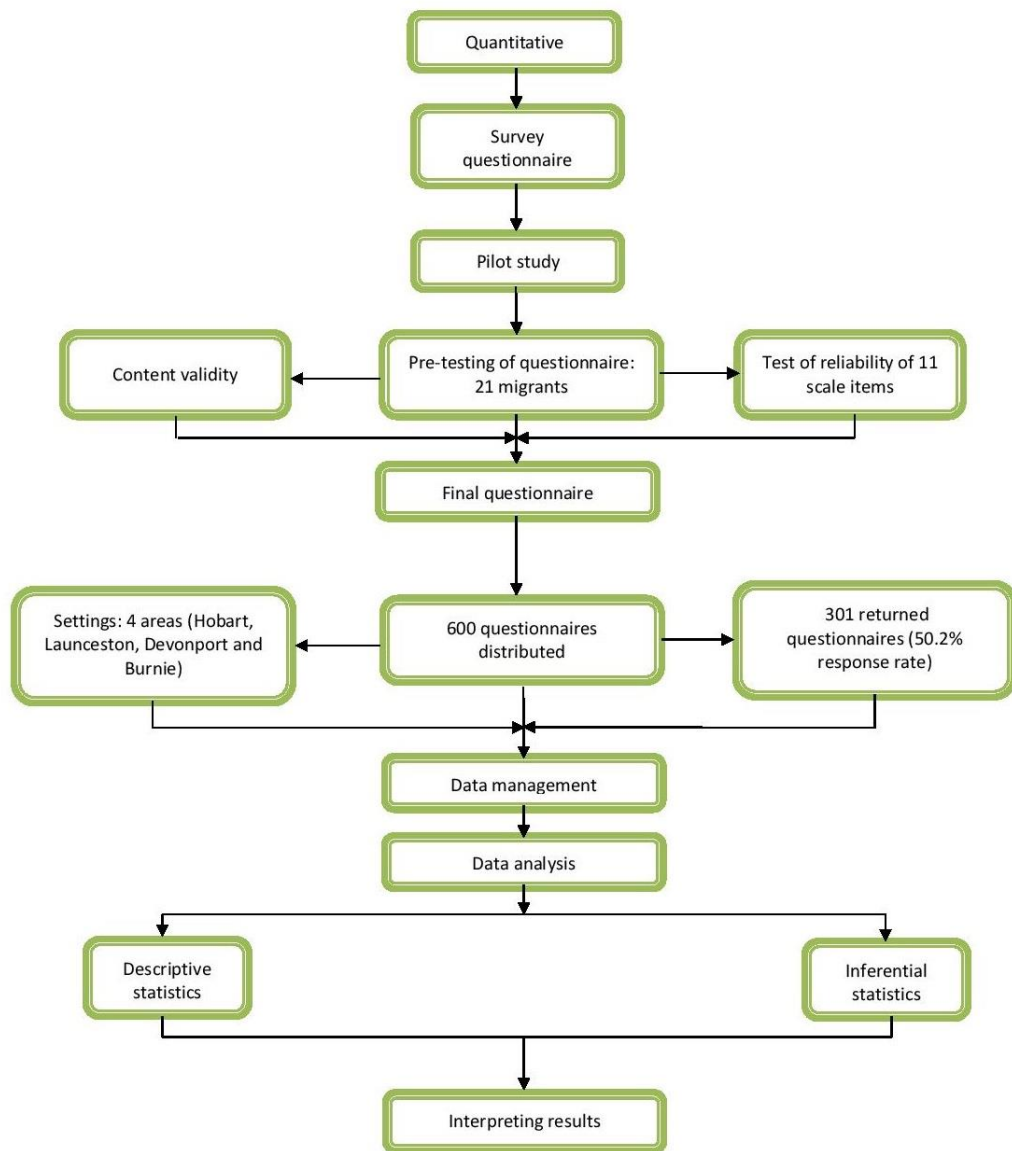


**Figure 3.1: Research design of the study**

As shown in Figure 3.1, the quantitative and qualitative research stages were conducted concurrently but separately, i.e., the quantitative and qualitative data were collected separately, but at the same time. The results of both the quantitative and qualitative data were then integrated during the interpretation and discussion phase. The integration between both sets of data can be used for comparison and any contrasts between the two data sets may allow further understanding (O’Cathain et al., 2007). A comparison of the data obtained by both methods can validate the results of both findings which allow the researcher to draw valid conclusions about the phenomena (Onwuegbuzie & Johnson, 2006). This is one of the advantages of the concurrent triangulation method. A questionnaire was developed as a quantitative tool to collect quantitative data about the food security of migrants in Tasmania, while semi-structured interviews were used as the qualitative data collection method. After the data collection process, both data types were analysed separately using different techniques and were integrated in the discussion phase. In the following section, the data collection process for both research methods, including sample selection, data management and the pilot study, are discussed in detail. The data collection and analysis timeframe is presented in Appendix 5.

### **3.3 Quantitative approach**

An overview of the quantitative approach used in this study is illustrated in Figure 3.2. Each stage of the approach is explained in detail in the following sections.



**Figure 3.2: Overview of quantitative approach**

### 3.3.1 Study setting

The whole population within a phenomenon which a study intends to investigate has to be determined before sample selection. The target population for this study was migrants living in Tasmania. In 2011, the number of overseas born people living in Tasmania was approximately 81,238 (Australian Bureau of Statistics, 2012a), which represented 16.4% of the total population of Tasmania. The migrant population is concentrated in the four main cities of Tasmania: Hobart (46.6%), Launceston (15.8%), Devonport (7.2%) and Burnie (3.3%). The remaining (21.7%) of



among their networks in Tasmania. This first group of migrants explained the research background and survey process to their networks.

It is important to determine the sample size in the research design. The sample size is considered as a crucial factor for inferences making about a population. If a sample size is too small, it may produce ambiguous results, whereas for a sample size which is too large may waste unnecessary resources. A sample size calculation was conducted and a sample size of approximately 384 (95% Confidence Level) was calculated to be sufficient for this study (Israel, 1992). Thus, a sample of about 384 participants would be recruited for this study. The selection criteria for the sample were migrants with different cultural backgrounds who were resettling in Tasmania, aged 18 and above, and have a reasonable understanding of English. Participant recruitment was assisted and supported by the Migrant Resource Centres and ethnic associations.

### **3.3.3 Survey questionnaire**

A questionnaire was used to gather the views, attitudes, perceptions, experiences and values of participants regarding food security in Tasmania. The questionnaire was designed to collect two principal types of information: factual information and the opinions of the respondents. The respondents were guided to consider and answer questions in relation to their experiences of and views on food security in Tasmania. The responses that were obtained appeared as variables and were organised and analysed using statistical methods and tools. Details of the questionnaire development and contents are explained further in the following section.

### **3.3.4 Questionnaire design and development**

The purpose of conducting a questionnaire is to achieve the four research objectives of this study:

- **Research objective 1 (RO1):** To examine the views of migrants from different cultural backgrounds on food security in Tasmania.



- **Research objective 2 (RO2):** To identify the food security problems facing migrants of different cultural backgrounds who live in Tasmania.
- **Research objective 4 (RO4):** To identify the acculturation strategies used by migrants with different cultural backgrounds in relation to food security in their new environment (Tasmania).
- **Research objective 5 (RO5):** To provide some suggestions for the enhancement of food security among migrants from different cultural backgrounds.

In order to achieve the research objectives, a questionnaire was used to collect quantitative data. The questionnaire items were designed and developed to address the identified issues of the study. The anonymous self-administered questionnaire used in this study was developed from a variety of different literature and resources (Babbington & Donato-Hunt, 2007; Kingori et al., 2010; Lê, Murray, et al., 2013; Pollard et al., 2002; Rychetnik et al., 2003). Pollard, Kirk and Cade (2002) make two key points. Their first point is that the content of the review on food choice indicates the complexity of the food choice process. The factors covered include sensory appeal, familiarity and habit, social interactions, cost, availability, time constraints, personal ideology, media and advertising and health. Their second point is that when making food choice decisions health promotion techniques can be better targeted towards certain groups of individuals, all holding similar sets of values. These two key points are useful as a basis for the development of the questionnaire used by this study. In order to manage the complexity of the good food choice process, the questionnaire focuses on three key aspects of food choice by migrants:

- Their experiences of food security in Tasmania.
- Their views of food security in Tasmania.
- Their attitudes and coping strategies.

The questionnaire also takes into account Pollard, Kirk and Cade (2002) point that when making food choices health promotion techniques can be better targeted towards certain groups of individuals, all holding similar sets of values. Thus, in addition to the questions grouped under three key aspects in the questionnaire, the

items in Part A of the questionnaire included the personal backgrounds of the respondents which act as independent variables for certain groups of individuals.

A draft questionnaire was initially developed with 50 questions divided into 5 parts:

- Part A (questions 1 to 15) concerned the demographic profile of participants, such as gender, age, and country of origin.
- Part B (questions 16 to 34) examined participants' experiences of food security in Tasmania.
- Part C (questions 35 to 41) investigated participants' views on food security in Tasmania.
- Part D (questions 42 to 48) surveyed participants' attitudes on coping strategies.
- Part E (questions 49 and 50) invited participants to write comments on the improvement of access to healthy food in Tasmania.

A summary of the questions, their position in the questionnaire and their relation to the research objectives is shown in Table 3.1.

**Table 3.1: Research objectives, questionnaire sections and question numbers**

Research objectives	Section	Question number
<b>Objective 1:</b> To examine the views of migrants from different cultural backgrounds on food security in Tasmania.	Part C: Views on food security in Tasmania.	Nos. 36-42
<b>Objective 2:</b> To identify the food security problems facing migrants of different cultural backgrounds who live in Tasmania.	Part B: Experiences of food security in Tasmania.	Food availability: nos. 16-25 Food accessibility: nos. 26-28 Food affordability: nos. 29-30 Food consumption: nos. 31-35
<b>Objective 4:</b> To identify the acculturation strategies used by migrants with different cultural backgrounds in relation to food security in their new environment (Tasmania).	Part D: Attitudes on coping strategies.	Nos. 43-48

Research objectives	Section	Question number
<b>Objective 5:</b> To provide some suggestions for enhancement of food security among migrants from different cultural backgrounds.	Part E: Suggestions and advice	Open-ended question

The experiences and views of participants to the questions in Part B and C of the questionnaire were measured by five-point Likert scales. In Part B: *Experiences of food security in Tasmania*, the Likert scale was used for only some of the questions. For example, question 21 (satisfaction with the current food price in Tasmania) was formatted with the scale items *Very satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Dissatisfied, and Very dissatisfied*. However, in Part C: *Views on food security in Tasmania*, questions 36 to 40 (views on food choices and food prices in Tasmania) was formatted with the scale items *Strongly disagree, Disagree, Undecided, Agree and Strongly agree*. Question 42 (the importance of factors influencing food security in Tasmania) was formatted with the scale items *Unimportant, Not very important, Neutral, Important and Very important*. The questions were either closed or open-ended as this allowed the participants to choose and give appropriate comments for their answers. The finalised questionnaire is found in Appendix 6.

### 3.3.5 Pilot study

A pilot study was conducted before the final implementation of the questionnaire in order to ensure the effectiveness and clarity of the questions and the validity of research instrument (Bryman, 2008; van Teijlingen & Hundley, 2001). The pilot study was also conducted to discover any weaknesses in the research design, and to assess the appropriateness and ease of use of the proposed research instruments or data collection methods (van Teijlingen & Hundley, 2001). Pre-testing the research instrument helps increase the success of the study, although there is no guarantee that successfully completing a pilot study will result in success of the full-scale survey (van Teijlingen & Hundley, 2001). Thus, a pilot study creates an opportunity to enhance the validity and reliability of the research.

### **3.3.5.1 Pretesting of the questionnaire**

Initially, the first draft of the questionnaire was tested with 21 migrants who were recruited from the Migrant Resource Centres, ethnic associations and by snowball sampling. The recruitment started with a few migrants who had agreed to distribute the information sheet and to explain the project background and survey process to their network of migrants. The participants that were first approached were from the researcher's own social network. As a result, 21 participants were recruited in the pilot study.

### **3.3.5.2 Validity**

"Validity refers to when a test is measuring what is intended to be measured" (Matthews & Kostelis, 2011, p. 184). Simply, validity is the match between the construct and the measurement; whether the results of the measurement process are accurate (Huck, 2012). A research instrument is valid if it measures what it means to measure. In quantitative research, measurement validity is concerned with how well the research instrument fits with the construct that is being measured (Neuman, 2011a). In the social sciences, two approaches appear to establish the validity of a research instrument: logic and statistical evidence (Kumar, 2011). As stated by Kumar (2005),

Establishing validity through logic implies justification of each question in relation to the objectives of the study, whereas the statistical procedures provide hard evidence by way of calculating the coefficient of correlations between the questions and the outcome variables. Establishing a logical link between the questions and the objectives is both simple and difficult. It is simple in the sense that you may find it easy to see a link for yourself, and difficult because your justification may lack the backing of experts and the statistical evidence to convince others. (p. 154)

Hence, establishing a logical link between questions and objectives is easier when the questions relate to tangible matters. In this study validity issues were addressed through the care taken to construct the quantitative research instrument (the questionnaire), and by data checking through validation strategies such as member

checking and consultation with an experienced researcher. In this study, content validity of the research was reached.

Content validation was applied to “determine the appropriateness of categories or factors and the completeness of the corresponding questionnaire items to the categories or factors in the cognitive or affective domains” (Matthews & Kostelis, 2011, p. 186). Research can be said to have content validity if it covers all possible dimensions of the research topic (Sarantakos, 2013). Content validation of the questionnaire was carried out with three experts in this field of research and 21 migrants.

In the pilot study, the questionnaires were attached with feedback forms so that the participants could provide their suggestions on the content of the questions and their own personal experiences for the final version of the questionnaire. Through the feedback and comments from participants, and then discussion with supervisors and experts, the draft questionnaire was revised and improved before final implementation (Teddlie & Tashakkon, 2009). The conclusion was that the content of the questionnaire covered the research interests that the study intended to examine. However, some amendments and corrections were needed. The details of the adjustments made in the questionnaire are discussed as below.

Some questions needed to be re-worded and arranged in a more logical sequence. For example, question 44 which asked about how migrants obtain food ingredients that they cannot buy from shops, was adjusted to make it clearer and more concise; while question 43 *‘Do you have other alternatives to get food ingredients you cannot buy from local food outlets or supermarkets?’* was removed to avoid repetition with question 44. One participant suggested that a wider range of options should be provided in question 12 which asked about income. There was also one request to provide examples for the option given in question 20 in order to make the option clearer.

### **3.3.5.3 Reliability**

The concept of reliability is related to consistency or dependability. Four factors affect the reliability of an instrument: the wording of questions, the physical setting,

the participant's mood and the regression effect of the instrument (Kumar, 2011). Clear conceptualising constructions, a precise level of measurement and the use of a pilot study are required in order to improve and ensure the reliability of the quantitative approach (Neuman, 2011b). The questions in the questionnaire developed for this study were purposely and consistently designed and arranged. A pre-designed outline with the titles of each subsection was used as a guideline when designing the questionnaire: the outline contained the issues that the study intended to investigate. Questionnaire items were then designed according to the outline which ensured that the questionnaire was focused and well-organised to meet the research objectives.

Eleven scale questions in the questionnaire were tested for reliability using Cronbach's alpha which is an index of reliability to measure the internal consistency of a test or scale (Tavakol & Dennick, 2011). The higher the score is, the more reliable the scale gets. The value of Cronbach's alpha for the values tested ranged from 0.70 to 0.95, which is considered good and acceptable. The results of the internal reliability of the two components indicate a high degree of reliability as presented in Table 3.2.

**Table 3.2: Cronbach's alpha reliability coefficients of components**

Components	Cronbach's alpha	Number of items	Number of cases
<b>Views on food security</b>	0.885	5	21
<b>The factors which influence food security</b>	0.768	6	21

#### **3.3.5.4 Final version of questionnaire**

After the pilot study and subsequent modification, the final questionnaire with 49 questions was established. The questionnaire was divided into five parts, A, B, C, D and E. The last part (E) invited participants to give their suggestions on the improvement of food security in Tasmania in order to provide more valuable qualitative data. The structure of the final questionnaire is presented in Table 3.3 (overleaf).

**Table 3.3: Structure of the Questionnaire (see Appendix 6 for detail)**

<b>Part A: About you</b>	Items 1-15 <ul style="list-style-type: none"> <li>- Gender.</li> <li>- Age group.</li> <li>- Country of origin.</li> <li>- Language normally spoken at home.</li> <li>- English proficiency.</li> <li>- Marriage status.</li> <li>- Number of people in household.</li> <li>- Town/place of residence.</li> <li>- Length of stay in Tasmania.</li> <li>- Education level.</li> <li>- Employment status.</li> <li>- Family or personal income per week.</li> <li>- Mode of transportation.</li> <li>- Food spend per week.</li> <li>- Rating of general health status.</li> </ul>
<b>Part B: Experiences of food security in Tasmania</b>	Food availability: Items 16-25. Food accessibility: Items 26-28. Food affordability: Items 29-30. Food consumption: Items 31-35.
<b>Part C: Views on food security in Tasmania</b>	Items 36-42.
<b>Part D: Attitudes on coping strategies</b>	Items 43-48.
<b>Part E: Own comments</b>	Suggestions on how to improve access to healthy food in Tasmania.

### 3.3.6 Data collection

Prior to data collection, an email was sent to the Migrant Resource Centres and ethnic associations to seek their support in assisting the participant recruitment process (See Appendix 2). With their permission, hardcopies of the questionnaire, information sheets and pre-addressed reply-paid envelopes were left at the reception desks of the Migrant Resource Centres and ethnic associations, for migrants to take if interested. To achieve 384 returned questionnaires with an expected response rate of 70%, 600 copies of the questionnaire were distributed through the centres and associations. Migrants who were interested in participating in the questionnaire could pick up the documents from the reception desks. Drop boxes were also provided at the reception desks to collect the completed questionnaires. The participants could choose to either place the completed

questionnaire into the drop box, or return it in the post using the reply-paid envelope provided. In order to attract more migrants, a recruitment advertisement (See Appendix 3) was posted in public places such as notice boards, at the Migrant Resource Centres and ethnic associations, and on social networking websites including Facebook and Twitter. Snowball sampling was also used as a recruitment method to increase the response rate. This started from an initial small group of interested participants, with a network of close friends who introduced others to the study.

The questionnaire could also be completed online. The online version of the questionnaire was designed through and collected by Survey Monkey® (an online questionnaire development and data collection tool, (Survey Monkey, 2014)). Migrants, who preferred to participate online, were given a URL of the Survey Monkey® website. Completed questionnaires were submitted directly to the website to ensure the confidentiality and anonymity of participants. In the planning stages of the study, it was anticipated early that participants would be recruited through social networking websites such as Facebook and Twitter. However, no response was obtained regarding participation in the study through this approach and the approach was abandoned.

It was expected that the use of web questionnaires would significantly reduce the cost involved in data collection as well as reduce the cost and time of data entry (Groves et al., 2009; Kaplowitz et al., 2004). It was also hoped that the use of web questionnaires would improve the response rate. However, there is evidence which indicates that web questionnaires have not been shown to improve response rates, but are either comparable to or yield lower response rates than other questionnaire modes (Groves et al., 2009; Kaplowitz et al., 2004; Lozar Manfreda et al., 2008). Amongst the migrants in this study, the online questionnaire proved to be the most popular option for completing the questionnaire, with 182 (30.4%) completing the online version of the questionnaire and 119 (19.8%) completing and returning the paper based version. Thus, a total of 301 questionnaires were returned which equates to a 50.2% response rate. Although the number of completed questionnaires did not reach the expected number of 384, the rigor of the study



and data interpretation would not be affected. The mixed methods approach, mixing the quantitative and qualitative approaches in this study, is complemented with interview data to validate the findings from the questionnaire.

### **3.3.7 Data management**

#### **3.3.7.1 Data coding**

Coding is the method of identifying or measuring a variable in a research instrument; and the method that is used to communicate the findings about a variable (Kumar, 2011). After data collection, the quantitative data is transformed into numerical values (codes) to facilitate the data analysis process. A coding frame was constructed with three basic rules: the codes must be mutually exclusive; coding formats must be comprehensive; and the codes must be applied consistently (Bowling, 2009). The number of digits assigned for each code depended on the variables. As there were a total of 301 respondents, the identity codes (ID) were in three digits. Missing data was given the code of 999. For data analysis purposes a master copy of the questionnaire was made as a code reference prior to data entry.

#### **3.3.7.2 Data entry**

The data from each survey that was entered into the dataset followed the ID number. The Statistical Package for the Social Sciences (SPSS) version 20 was used for data analysis. Prior to the data analysis process, each variable was labelled. Variables referred to items of the scales. Each code for each item remained the same when the data was entered. For instant, in a question asking about married status, *single* was coded as 1, *married/de facto* coded as 2, *divorced/separated* coded as 3, *widowed* coded as 4. A new code was given when a new variable was created.

#### **3.3.7.3 Data cleaning**

Once the data entry was completed, the data were cleaned in order to detect, diagnose, and edit any faulty data that may appear during the data collection, coding and data entry processes. There are two types of data cleaning. Firstly, the frequency distributions and data ranges were checked for any outliers and wild

codes. Secondly, the internal consistency of the data was checked for any impossible combinations and inconsistent values and meanings.

### **3.3.8 Quantitative data analysis**

The quantitative data analysis is based on the data obtained from the questionnaire. The numerical data were gathered in the form of descriptive statistics to describe, summarise and make sense of the particular data set (Johnson & Christensen, 2012). In this study, the statistical data showed the frequency and percentage of responses to the questionnaire items. The statistical data is to examine the relationship between migrants' demographic backgrounds and their views on food security in Tasmania. This study employed descriptive (e.g., frequency and percentage) and inferential statistics including ordinal logistic regression to analyse the questionnaire responses. Descriptive statistics manipulate the quantitative data by organising, summarising and presenting the data in convenient and informative forms (Selvanathan et al., 2011). Conversely, inferential statistics allow the researcher to draw conclusions about the target population based on the information collected from the sample (Selvanathan et al., 2011).

Before the statistical analysis, the response rates were calculated and the demographic profile of the participants identified. The data distribution was examined by an assessment of sample normality to determine which statistical tests should be used.

#### **3.3.8.1 Determining the normality of distribution**

In order to examine the distribution of scores on the variables, skewness and kurtosis values were calculated. Skewness provides an indication of the symmetry of the data distribution and kurtosis indicates the peakedness of the distribution (Pallant, 2013). A positively skewed distribution has scores clustered to the left, and by contrast, a negatively skewed distribution has scores clustered to the right. A bell-shaped distribution which is not too peaked (positive) or flat (negative) shows that kurtosis is normal. When both skewness and kurtosis values are zero, data appears to be normally distributed, if both skewness and kurtosis values are not zero the data is not normally distributed.

In this study, most items on the questionnaire showed skewness and kurtosis values which were varied greatly from zero (see Appendix 8), so representing a non-normal distribution of data. In addition, the convenience sampling method was used to sample the respondents, so the sample could not be counted as a random sample. Furthermore, the Likert scales used produced ordinal data which was scaled. All these factors contributed to making non-parametric statistical tests the most appropriate option for analysing the dataset of this study (Burns, 2000).

### **3.3.8.2 Statistical techniques**

Two types of statistical analysis were performed to analyse the responses to the questionnaire, namely descriptive and inferential. Descriptive statistics were used to organise, summarise, analyse and present the data in a convenient and informative way (Munro, 2005), for example the frequency and percentage of responses to each question. The descriptive data is presented where “N” is the total number of respondents and “n” is the subset number of the respondents.

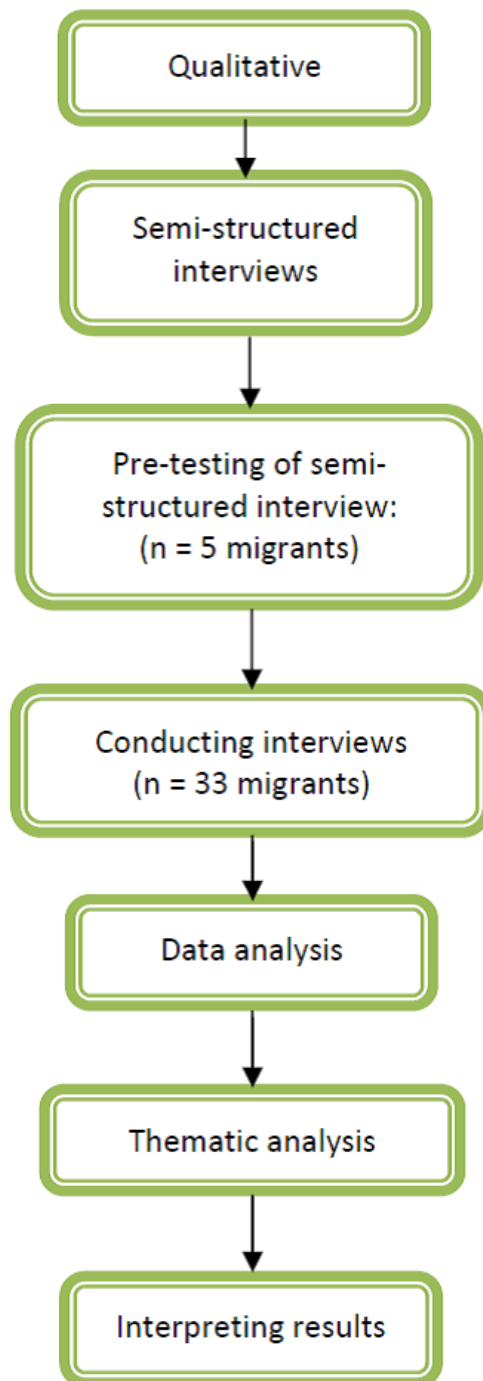
Inferential statistical techniques were used to identify statistically significant associations between variables. In this study, the non-parametric Chi-square ( $\chi^2$ ) test and ordinal logistic regression were selected as appropriate tests to examine the associations between variables due to the non-normal distribution of the collected data. Chi-square ( $\chi^2$ ) tests were performed between gender, region of origin, length stay in Tasmania, marital status (as independent variables) and each Likert-scale outcome variable relating to the experiences and views of migrants on their food security in Tasmania (as dependent or outcome variables). If Chi-square assumptions are violated (i.e., more than 20% of expected cells are less than 5), a Fisher’s Exact test should be used. When the number of cells with the expected number of counts of less than 5 exceeds 20%, the frequency table needs to be reorganised by merging the columns or rows to meet the requirement. Overall, tests of significance between variables, odds ratios (OR) and 95% confidence intervals are calculated. Results are considered statistically significant at  $p \leq 0.05$  (Munro, 2005). Ordinal logistic regression was conducted using the GENLIN procedure. All assumptions, including testing for multicollinearity (where two or more independent variables are highly correlated with each other), were tested

before performing the ordinal logistic regression analysis. It must be noted that only those factors that are indicated to be significant in the Chi-Square tests underwent further analysis using ordinal logistic regression.

Data analysis was conducted using SPSS software, which can perform a wide range of statistical analyses, such as frequency tables, crosstabs, charts and t-tests to show the relationships between different variables (Bryman, 2008). In this study, the SPSS software (version 20) was selected as the most appropriate tool to transform the essential characteristics of that quantitative data into a more interpretable form. The detailed analysis process and the results of the quantitative data analysis are presented in chapter 4.

### **3.4 Qualitative approach**

An overview of the qualitative approach is illustrated in Figure 3.4 (overleaf). The details of each subsection including participant recruitment, data collection and data analysis are presented in the following subsections.



**Figure 3.4: Overview of qualitative approach**

### **3.4.1 Sampling and recruitment**

Purposeful sampling was employed to recruit the participants for the qualitative phase of this study. Purposeful sampling is defined as a sample method to select particular settings, persons, or activities in order to provide information that cannot be exacted from others (Maxwell, 2012). In this study, the use of purposeful sampling was based on the fact that the purposely selected subjects were information-rich, from which interesting insights can be obtained, and therefore, they could be the best to know about the particular phenomenon (Creswell, 2009).

The interview participants were recruited from those who completed the questionnaire and showed interest in participating in a follow-up interview, or those from the Migrant Resource Centres or ethnic group associations who were willing to take part in the interview. The recruitment criteria for the sample was the same as the recruitment criteria for the questionnaire participants, i.e., migrants from different cultural backgrounds who were resettling in Tasmania, aged 18 and above, and who had a reasonable understanding of English. From English as a Second Language (ESL) standard (IELTS, 2015), a “reasonable level” should be at the intermediate level or above. Generally speaking, a migrant with some reasonable understanding of English is expected to participate functionally in daily conversation with a variety of others. A sample of 33 migrants was recruited for interview.

### **3.4.2 Semi-structured interviews**

The interview is one of the most common tools in qualitative data collection. Interviews can be conducted in the form of face-to-face, telephone interviews or focus group meetings using open-ended questions to elicit views and perceptions from the participants (Creswell, 2009). Generally, interviews involve an interviewer asking an interviewee questions to search for meanings from the conversation (Bryman, 2008; Johnson & Christensen, 2012). There are three types of interviews presented by Robson (2011): structured, semi-structured and unstructured interviews. The distinctions of the three types of qualitative interviews are based on the degrees of the interview structure (Robson, 2011).

The interview technique was used in this study to collect qualitative data that allowed an in-depth exploration of the perceptions of migrants of their food security in Tasmania. Hence, although the questions in the structured interviews are in an open-ended form, this type of interview is too structured to allow participants to freely express their feelings and researchers have no flexibility to ask questions. In contrast, an unstructured interview is too informal and may lose the focus of the research topic. Therefore, the semi-structured interview was considered to be the most appropriate qualitative data collection method for this study. In semi-structured interviews, open-ended questions are prepared and designed prior to the formal interview sessions in the form of an interview protocol. These questions are designed to allow the in-depth probing of views, attitudes, beliefs, thoughts, knowledge, reasoning, motivations and feelings that are associated with the research topic (Johnson & Christensen, 2012). However, the interviewer can change the wording of the questions. With the pre-designed interview protocol, the interviewer can still cover the entire topic. The interviewer does however need to keep the interview on track when the interviewee goes off the topic.

Semi-structured interviews were conducted to meet the five research objectives of the study which aimed to examine the food and related health of migrants in Tasmania. Specifically, migrants were asked about their experiences of food security in Tasmania including food availability, food accessibility and their coping strategies, as well as the support they received from different sources. Through their experiences of food security, their challenges and needs relating to food security should be identified. Therefore an interview protocol with a list of questions was developed based on the research objectives, as a guide to assist the interviewer in the interview process. The complete interview protocol is in Appendix 7.

### **3.4.3 Pre-testing instrument**

Five participants who consented to participate in the study took part in a pre-test of the interview questions. The participants were asked about the appropriateness of the questions and how easy they were to understand. The participants were asked if the questions needed to be changed so that they might be easier to understand and clearer, for example, were there any inappropriate words within the questions

that were difficult to understand? Changes to the questions were then made subsequently if required. How long the interviews took to conduct was also tested during the pre-test process to assist the interviewer to determine an appropriate length for the interview.

### **3.4.4 Trustworthiness of qualitative method**

Prior to the development of the interview questions and data collection, the trustworthiness of the qualitative research method is required. Trustworthiness of qualitative research is recognised to be achieved differently to quantitative research. It is included validity, reliability, transferability and reflexivity to produce high-quality data (Patton, 1999). Each of these principles is discussed below.

#### **3.4.4.1 Validity**

In qualitative research, validity is a measure of how accurate the research findings reflect the phenomenon under investigation (Henn et al., 2006). Whittemore, Chase & Mandle (2001) noted that, “findings subsequently need to be presented with an explicit articulation of the validity criteria of emphasis and the specific techniques employed, so that consumers of research can critique findings in a meaningful way” (p. 533). Issues of validity must be considered throughout the investigation stage of the qualitative research, from planning to completion. Thus, researchers need to carefully analyse the materials and evidence gathered as a result of visiting and interacting with the participants of a study (Creswell & Plano Clark, 2007). The researcher should also have the related knowledge and accurately represent the social world under study (Grbich, 1999). Therefore at this stage, the interviewer asked the participants for their views on and experiences of food security using pre-designed open-ended questions and some follow-up questions according to the context of the particular interview. The data collected from the interviews were then analysed and coded carefully. The findings and data summaries were also checked by the researcher’s primary and co-supervisors. The results were explained and presented using the narrative and meaning approach to ensure that all the emerging themes were clearly defined and conveyed to the readers.



#### **3.4.4.2 Reliability**

Reliability is a measure of how the findings are independent of accidental circumstances of the research (Kirk & Miller, 1986). The findings must be consistent, dependable and stable. In qualitative research, reliability depends on the ability of the researcher to present a coherent, complete and precisely checked exploration of all aspects of the topic under investigation (Grbich, 1999). In order to increase reliability in qualitative research, a variety of methods can be applied, such as increasing the variability of perspectives or compiling a list of possible errors that can be avoided (Sarantakos, 2013). The interview questions were designed in a way that allowed the interviewer to investigate different aspects of the issue. In addition, the researcher was the only person who conducted the interviews with the migrants, so ensuring the consistency of the interview data.

#### **3.4.4.3 Transferability**

Transferability is defined as “the range and limitations for application of the study findings, beyond the context in which the study was done” (Malterud, 2001, p. 484). In general, qualitative research cannot be generalised; however Malterud (2001) indicates that findings from qualitative research can be transferable to other populations in similar situations. The goal of research is to generate new knowledge that can be shared and applied beyond the study setting, but is not supposed to be valid for population groups at large. In this study, qualitative research provides comprehensive and descriptive findings to the needs and challenges encountered by migrants locally that can be transferred to other situations nationally and internationally (Malterud, 2001).

#### **3.4.4.4 Reflexivity**

Reflexivity is part of the trustworthiness of the research methods. The significance role of reflexivity plays in the qualitative research is highlighted by Liamputtong (2013) where the researcher is part of the setting, context and culture they are trying to understand and analyse. Simply say, the researcher is the research instrument.

Reflexivity is considered as a process of self-assessment and recognition of researcher’s own subjectivity, preconceptions, motivation and theoretical

foundations in the research process (Liamputtong, 2013; Malterud, 2001). In this sense, reflexivity is a method which

requires the researcher to be critically conscious through personal accounting of how the researcher's self-location (across for example, gender, race, class, sexuality, ethnicity, nationality), position, and interests influence all stages of the research process... to produce research that questions its own interpretations and is reflexive about its own knowledge production towards the goal of producing better, less distorted research accounts. (Pillow, 2003, p. 178)

Therefore, the researcher requires reviewing and analysing the data in such a way to avoid any previous notion or cogitation of findings and get rid of portraying personal opinions as the finding emerged.

### **3.4.5 Data collection**

Interviews took place in the meeting rooms of the Migrant Resource Centre, ethnic associations or other public places at a mutually convenient time. During the interviews, some techniques were taken into consideration to avoid bias: there was third person present whilst the interviews were being conducted (Neuman, 2011b) and the interview questions were sent to the participant before their interview. Each face-to-face interview took between 30 to 40 minutes. Telephone interviews were conducted with participants who were not able to be present physically in a face-to-face interview. With the participant's approval, the whole interview was recorded using a portable electronic recording device and saved as a secure password protected MP3 file on the researcher's computer.

### **3.4.6 Data management**

#### **3.4.6.1 Transcription of interview data**

The audio recording was transcribed into text, checked for accuracy and entered into NVivo v10.0 (QSR International, 2014) which aided as data collation and coding software for qualitative data analysis. If no alterations to the transcripts were

required by the interviewee, the inference was made that the interviewee was satisfied with the accuracy of the transcript.

#### **3.4.6.2 Data coding**

Each interviewee was assigned a numerical code based on the alphabetical order of their name. For example, a migrant participant would be coded as “Migrant (M) 01”. For those participants who provided written responses in the questionnaire, a numerical code was also assigned, such as “Questionnaire Respondent (QR) 34,” for their anonymity and assist collation of data. After the coding process, these responses were copied into NVivo v10.0 (QSR International, 2014).

#### **3.4.7 Qualitative data analysis**

Data from the semi-structured interviews underwent a data analysis process which involved giving meaning to the derived data (interpretation) (Strauss & Corbin, 1998). In this study, the semi-structured interview data were analysed using thematic analysis, and NVivo software (version 10) as an analysis tool.

Thematic analysis is one of the most commonly used methods of qualitative analysis and is a process for encoding qualitative information. Put simply, thematic analysis refers to the themes that emerge as important descriptions of a phenomenon (Fereday & Muir-Cochrane, 2006). Coding is the central role of qualitative analysis which functions to organise and manage data; identify categories and concepts; link these concepts into substantive and formal themes; and help researchers to build, rather than test theory (Auerbach & Silverstein, 2003; Charmaz, 2006; Ryan & Bernard, 2000; Strauss & Corbin, 1998). According to Gibbs (2007),

Coding is how you define what the data you are analysing are about. It involves identifying and recording one or more passages of text or other data items such as the parts of pictures that, in some sense, exemplify the same theoretical or descriptive idea. Usually, several passages are identified and they are then linked with a name for that idea – the code. Thus all the text and so on that is about the same thing or exemplifies the same thing is coded to the same name (p. 38).

Coding is the process of relating sections of data to the categories which the researcher has either previously developed or is developing on an on-going basis as the data are being collected (Bowling, 2009). "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldana, 2010, p. 3). The coding process coded and labelled all the data. The initial codes with the same label are grouped together as a theme. "A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82).

The process of thematic analysis involves the generation of codes, the identification of themes through data reading, line-by-line coding or word-by-word coding; and data integration and interpretation (Fereday & Muir-Cochrane, 2006; Robson, 2011; Thomas & Harden, 2008). According to Braun & Clarke's (2006) guide to conducting thematic analysis, there are six phases in the thematic analysis process: data familiarisation; the generation of initial codes; searching for themes; reviewing themes; defining and naming themes and finally; producing the report. Based on these six basic steps thematic analysis is considered an easy method to learn and conduct, one that is comfortably accessible to researchers with little or no experience in qualitative research. Thematic analysis has advantages such as it is flexible; produces accessible results (this is an aid in educating the general public); it highlights the similarities and differences across the data set; and it produces qualitative analyses appropriate to informing policy development (Braun & Clarke, 2006). The details of the qualitative data analysis will be further explained in chapter 5.

### **3.5 Ethical issues**

In research, any dilemma stemming from a moral quandary is a basis of ethical conduct (Kumar, 2011). This study involves human beings, and therefore ethical issues and concerns are involved, and therefore ethics approval was required from

the Human Research Ethics Committee of the University of Tasmania. There are five basic principles in ethical research:

- Beneficence, which means the obligation to the subjects and/or society and outweighs all potential risks;
- Responsibility (of the researcher to society and the specific communities);
- Integrity (of the researcher and the research to be undertaken);
- Justice, which refers to the question as to who ought to receive the benefits of the research and bear its burden; and
- Respect (for people's dignity and rights).

(American Psychological Association, 2010, pp. 3-4)

This study obtained ethics approval from the Human Research Ethics Committee (Tasmania) Network (see Appendix 1). In order to protect the confidentiality of the participants, the completed questionnaires and recorded audio files were only accessible and coded by the researcher. The interview participants were given codes, for example participant 01, without referring to their names. In addition, the participants were given opportunities to access copies of their audio records and interview transcripts before publication and had the opportunity to withdraw any information that they felt uncomfortable with.

A counselling service and Translating and Interpreting Service (TIS) were provided and arranged for those participants who required these services. It was considered that during the interviews some participants may have a reason to recall unpleasant experiences, such as fleeing their country of origin and living in refugee camps or similar, and the counselling service was provided for those who experienced discomfort or distress during the interview process. Participants from a non-English speaking background were given the opportunity to refer to the TIS if they faced difficulty in understanding the information sheets and consent forms for participation in the survey or interview process.

All hard copy data that was gathered, including returned questionnaires, interview transcripts and coded data, together with electronic data that was stored on CD is

kept in a locked, secure cabinet identified within the University of Tasmania's Centre for Rural Health for a period of 5 years. The data will be destroyed after a period of five years.

### **3.6 Conclusion**

Methodology is an essential part of the whole research process that determines the research pathway and justifies the research approach and tools used in the research. Hence, the research methodology forms a valid basis for judging the success of the research, and the knowledge and ability of the researchers in conducting the research. This chapter presents the conceptual framework which underlies the design of the study. The detailed description of the methods and tools used and rationale for using them in this study is presented. This study employs a mixed methods approach using survey questionnaires and semi-structured interviews to gather rich data from multiple perspectives about the issue of food security among migrants in Tasmania. The study procedure has been described in detail. The process of data collection and analysis, including the collection and analysis of the questionnaire and interview data has also been presented in this chapter. The validity and reliability of the data collection instruments (questionnaires and semi-structured interviews) were tested. Two data analysis software programs, SPSS and NVivo were employed to facilitate the data analysis process. The results of both the quantitative and the qualitative approaches are presented in chapters 4 and 5 accordingly.

# Chapter 4: Quantitative Data Analysis

## 4.1 Introduction

This chapter presents the analysis results of the quantitative data collected from the questionnaire. Quantitative analysis deals with numerical data and the use of statistical methods to obtain and interpret results. As mentioned in the previous chapter, the questionnaire was designed to address research objectives (RO) 1, 2, 4 and 5. RO 1 aims to examine the views of migrants from different cultural backgrounds on food security in Tasmania; RO 2 identifies the food security problems facing migrants from different cultural backgrounds who live in Tasmania; RO 4 identifies the acculturation strategies used by migrants from different cultural backgrounds in relation to food security in their new environment (Tasmania), and RO 5 intends to provide some suggestions and advice for the enhancement of food security among migrants from different cultural backgrounds.

This chapter has eight sections including this introduction. The data analysis techniques are discussed first, followed by a description of the characteristics of the questionnaire respondents. Then the migrants' experiences about food security including food availability, food accessibility, food affordability and food consumption are presented, followed by their views on food security and the coping strategies that they use. The results of the inferential statistical analyses using Chi-square and ordinal logistic regression tests to examine the relationships between the migrants' experiences, perceptions and attitudes about food security and their demographic backgrounds are presented. Lastly, the chapter presents a summary of the results and a conclusion.

## 4.2 Data analysis techniques

As outlined in the previous chapter, the questionnaire was designed to address four ROs. The questionnaire had five sections with 49 questions, including one open-ended question. Each section aligned with one RO. The open-ended section that sought to address the last RO will be discussed in the next chapter.

In this study, the data analysis was performed with the assistance of SPSS software version 20.0. The relationship between independent variables (e.g., gender, region of origin, length of stay in Tasmania) and dependent variables (e.g., migrants' experiences or views on food security) were analysed (Faherty, 2008). The independent variables consisted of categorical or nominal data that had independent response categories and the dependent variables consisted of ordinal data such as Likert-scale responses (Huizingh, 2007). The questionnaire included 15 independent and 33 dependent variables. The independent variables were factors that influenced the respondents' experiences, perceptions and attitudes towards food security in Tasmania. The statistical analysis suggested using SPSS should enable the determination of the interconnections and relationships between the two types of variables.

Two types of statistical analysis were performed to analyse the questionnaire responses: descriptive and inferential statistics. All collected data is either categorical or ordinal. Thus, descriptive statistics were conducted initially to provide information such as the frequency and proportion of responses within each category of the different variables. Inferential statistical techniques were employed where possible to identify the relationship between the respondents' demographic background, experiences, perceptions and attitudes towards food security in Tasmania as well as to determine the significance of the results.

The distribution of the data was examined using the skewness and kurtosis of the data thereby ensuring that the appropriate statistical analyses could be adopted. Skewness and kurtosis provide an indication of the symmetry and peakedness of the distribution of the data (Pallant, 2013). Skewness and kurtosis values were far away from 0 indicating that the distribution of collected data was not normally distributed (see Appendix 8). Therefore, the statistical techniques chosen to analyse the data were the non-parametric such as Chi-square ( $\chi^2$ ) tests, followed by ordinal logistic regression analysis to identify any interconnections and relationships between the variables.



#### 4.2.1 Chi-square ( $\chi^2$ ) tests

Chi-square ( $\chi^2$ ) tests were employed to evaluate the dependence among variables and to examine whether the socio-demographic factors including gender, region of origin, length stay in Tasmania, marital status (independent variables) are related to each Likert-scale outcome variable such as the migrants' experiences and views on their food security in Tasmania (dependent variables). It is important to remember with Chi-square ( $\chi^2$ ) test, that the number of the cells in the contingency table with the expected number of counts of <5 must not be >20% of the total number of cells. When the number of cells with the expected number of counts of <5 exceeds 20%, the table needs to be reorganised by merging the columns or rows so that the expected number of counts of <5 is not >20% of the total number of cells. For instance, the set of choices '*Strongly agree* and *agree*' or '*Very important* and *important*' can be merged into one group, depending on the context of the test. An alternative test to use when Chi-square assumptions are violated (i.e., >20% of expected cells <5) is the Fisher's exact test. The results of the Chi-square ( $\chi^2$ ) tests performed are shown in table A, B and C (See Appendix 9).

Chi-square ( $\chi^2$ ) tests only demonstrate an association, they do not provide a measure of the strength of the relationship between the variables as well as the nature of the differences between the groups (Munro, 2005; Pallant, 2013). Those factors that were shown to be significant (p values  $\leq 0.05$ ) underwent ordinal logistic regression.

#### 4.2.2 Ordinal logistic regression

Ordinal logistic regression analyses were conducted to determine which independent variables have a statistically significant relationship to the dependent variables (Laerd Statistics, 2014). In the test, four criteria must be met in order for the result to be valid: the dependent variable must be ordinal; one or more independent variables can be ordinal or categorical data; no multicollinearity should exist within the data (multicollinearity occurs when two or more independent variables are highly correlated with one another) and; the proportional odds need to be determined (i.e., each independent variable has an identical effect at each

cumulative split of the ordinal dependent variable). The Odd Ratio (OR) was also calculated. OR is a relative measure of effect that allows comparison within the independent variables (whether they had higher or lower values compared to other groups). For example, the OR may show that male migrants are less likely to know about food in Tasmania than female migrants. Ordinal logistic regression was conducted using the GENLIN procedure within SPSS version 20.0 to determine the relationship between variables. The 95% confidence intervals were also calculated to test the significance between variables. Results were considered statistically significant at  $p \leq 0.05$  (Munro, 2005). All the data assumption tests including the test for multicollinearity were conducted before the ordinal logistic regression analysis. The results showed that no assumptions were violated.

### **4.3 Profiles of the questionnaire respondents**

As indicated in chapter 3, 600 sets of questionnaires were distributed to migrants in Tasmania through the Migrant Resource Centres, ethnic associations and snowball sampling. A total of 301 questionnaires were returned with a response rate of 50.2%. Part A of the questionnaire was designed to collect demographic information. The respondents varied in terms of gender, age group, country of origin, English proficiency, marriage status, number of household members, place of residence, length of stay in Tasmania, education level, employment status, income, mode of transport, expenditure on food and general health status. A summary of their demographic characteristics is provided in Table 4.1 overleaf.

There were 122 male and 179 female migrants (40.5% and 59.5% respectively) responded to the questionnaire. The respondents ranged in age from 18 to over 65 years, with the largest being in the 25-34 years group (26.0%) and 35-44 years (23.3%). Only 7.6% were aged 65 years and over.

**Table 4.1: Characteristics of the questionnaire respondents (total number of respondents (N) = 301)**

<b>Variables</b>	<b>Number (n)</b>	<b>Percentage (%)</b>
<b>Gender</b>		
- Male	122	40.5
- Female	179	59.5
<b>Age group</b>		
- 18-24	46	15.3
- 25-34	78	25.9
- 35-44	70	23.3
- 45-54	47	15.6
- 55-64	37	12.3
- 65 and over	23	7.6
<b>Region of origin</b>		
- Asia	226	75.1
- Middle East (e.g., Iran, Turkey & United Arab Emirates)	11	3.7
- Europe	36	12.0
- North America	3	1.0
- South America	4	1.3
- Africa	21	7.0
<b>English proficiency</b>		
- Excellent	94	31.2
- Good	133	44.2
- Fine	74	24.6
- Poor	0	0
- Very poor	0	0
<b>Marital status</b>		
- Single (never married)	67	22.3
- Married/de facto	219	72.8
- Divorced/separated	7	2.3
- Widowed	8	2.7
<b>Number of household members</b>		
- 1	22	7.3
- 2	94	31.2
- 3	72	23.9
- 4	62	20.6
- 5 or more	51	16.9
<b>Usual place of residence in Tasmania</b>		
- North	166	55.2
- South	112	37.2
- North West	23	7.6
<b>Length of stay in Tasmania</b>		
- Less than 1 year	43	14.3
- 1-2 years	35	11.6
- Over 2-3 years	38	12.6

Variables	Number (n)	Percentage (%)
- Over 3 years	185	61.5
<b>Highest level of education</b>		
- No formal education	2	0.7
- Completed primary education	10	3.3
- Completed secondary school	44	14.6
- Some training (TAFE courses, etc.)	49	16.3
- University qualification	196	65.1
<b>Employment status</b>		
- Employed	191	63.5
- Unemployed	110	36.5
<b>Family/personal weekly income</b>		
- Less than \$100	15	5.0
- \$100-\$299	31	10.3
- \$300-\$499	45	15.0
- \$500-\$699	29	9.6
- \$700-\$899	23	7.6
- \$900 or over	69	22.9
- I do not wish to answer this question	89	29.6
<b>Mode of transport</b>		
- Own transport (e.g. car, bicycle)	227	75.4
- Public transport	67	22.3
- Walking	54	17.9
- Other	3	1.0
<b>Weekly food expenditure</b>		
- Less than \$0	0	0.0
- \$1-\$50	51	16.9
- \$51-\$100	103	34.2
- \$101-\$200	96	31.9
- \$201 or more	51	16.9
<b>General health status</b>		
- Excellent	45	15.0
- Good	181	60.1
- Reasonable	66	21.9
- Poor	7	2.3
- Very poor	2	0.7

The majority of the respondents (75.1%) were originally from Asia, with the remainder from Europe, Africa, Middle East, South America and North America.

Almost half (44.2%) of the respondents were self-rated their English proficiency as *Good* while 31.2% self-rated as *Excellent*. None of them indicated that they had *Poor* or *Very poor* English language proficiency.

About 72.8% of the respondents were married or in a de facto relationship and 22.3% were single or had never married. Single households were not common (7.3%).

Most of the respondents lived in households of two (31.2%) or three people (23.9%), but households with four and five or more people made up 20.6% and 16.9% of the sample respectively.

The majority of respondents (55.2%) lived in the North of Tasmania, followed by 37.2% in the South and the remainder (7.6%) in the North West. Most had lived in Tasmania for over three years (61.5%) and 14.3% were relative newcomers, having spent less than one year in Tasmania.

The respondents were well-educated, with 65.1% having completed a university qualification. 16.3% had completed some sort of training course (e.g., TAFE course) and 15.0% of the respondents reported completing secondary school as their highest education qualification. Only 3.3% reported completing primary education as their highest education qualification and 0.7% of the respondents had not received any formal education. 63.5% of the respondents were employed while the remainder (36.5%) were unemployed.

29.6% of the respondents did not want to disclose their family or personal weekly income. 40.1% of the respondents had income of \$500 or over per week (with 22.9% an income of \$900 and over) and the remainder (30.3%) had a weekly income of less than \$500 (with 5.0% having a weekly income of less than \$100).

75.4% of the respondents had their own transport (car or bicycle). 22.3% of the respondents used public transport such as a bus and 17.9% indicated that walking was their most common methods of getting around. Only 1.0% of the respondents used another mode of transport, such as a partner or family member who provided transport.

The majority (66.1%) of the respondents spent \$51-\$200 a week on food. Surprisingly the numbers spending \$1-\$50 a week on food were identical to those

spending \$201 or more (16.9%). None of the respondents indicated they spent less than \$1 weekly on food.

The majority (60.1%) of the respondents self-rated their health condition as *Good*; 21.9% *Reasonable* and 15.0% *Excellent*. Only 2.3% and 0.7% self-rated as *Poor* or *Very poor* respectively.

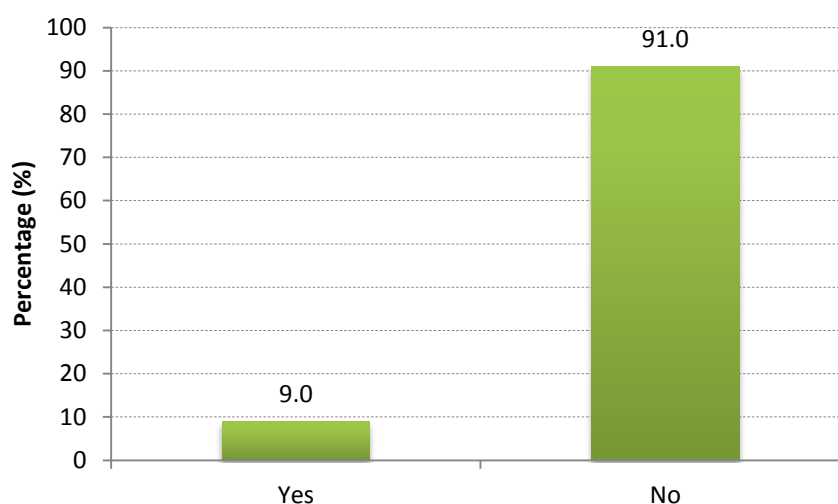
## 4.4 Experiences of food security

The respondents were asked about their experiences of food security in Tasmania including food availability, food accessibility, food affordability and food consumption patterns. These four themes were developed to reflect the migrants' experiences of food security in Tasmania. These themes are presented in detail in the following sub-sections.

### 4.4.1 Food availability

#### 4.4.1.1 Food situation

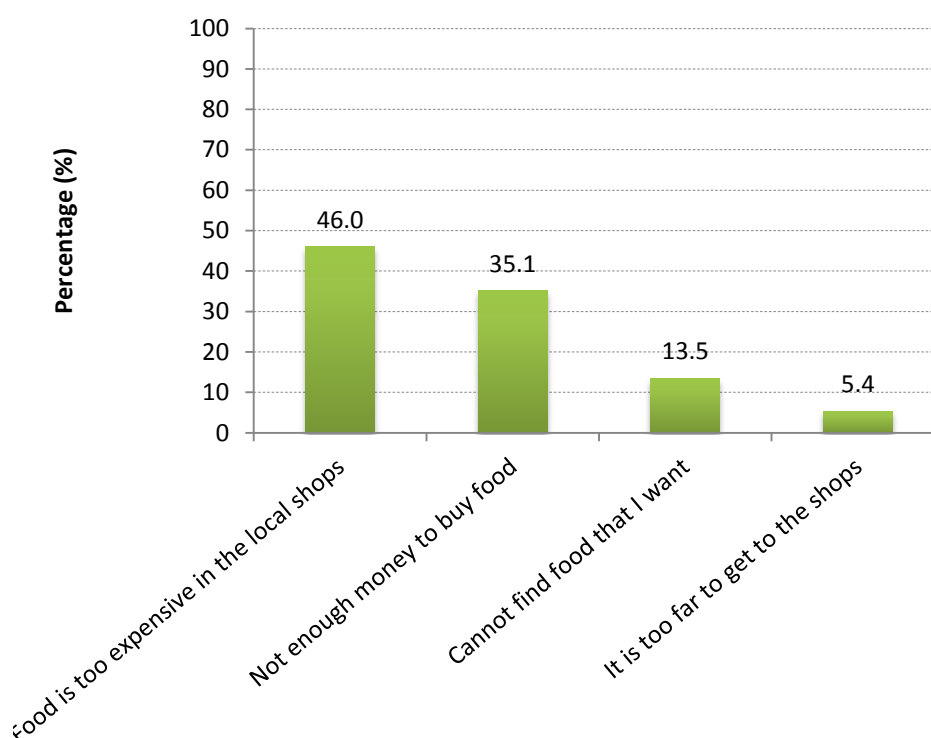
Figure 4.1 shows the food situation of the respondents. The majority of respondents (91.0%) did not encounter circumstances in Tasmania where they had no food.



**Figure 4.1: Have you ever experienced any situation where you have had no food in Tasmania? (N=301)**

The 9.0% (N=27) respondents who had experienced a 'no food situation' in Tasmania identified four reasons for the 'no food situation' (Figure 4.2). The reasons

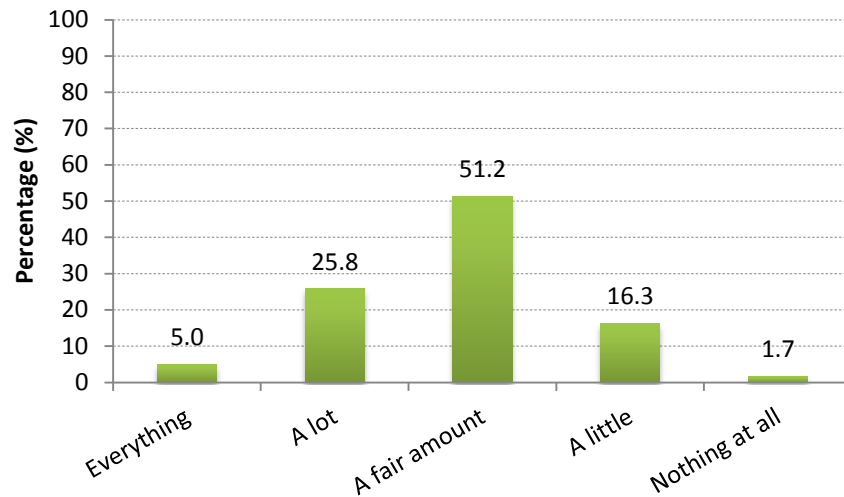
were expensive food in the local shops (46.0%); not enough money to buy food (35.1%); the food of their choice was unavailable (13.5%); and the long distance to the shops (5.4%), (Figure 4.2).



**Figure 4.2: Reasons for the 'no food situation' in Tasmania (N=27)**

#### **4.4.1.2 Food knowledge**

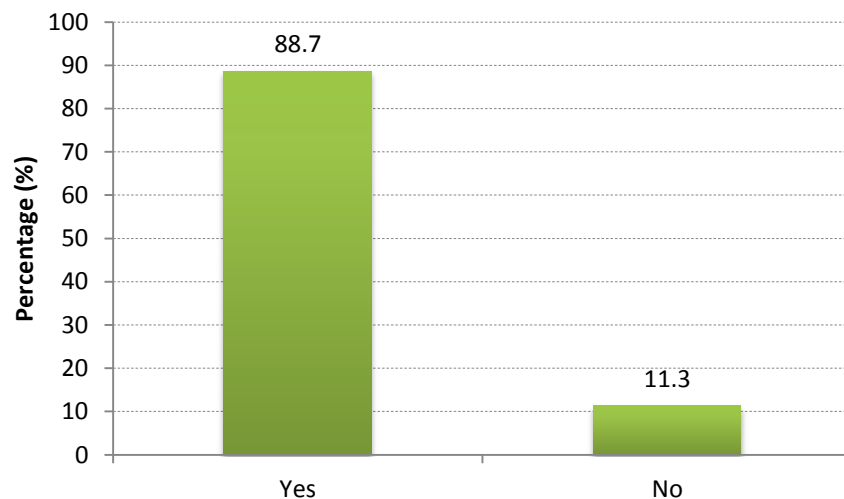
The migrants were asked how much they knew about the food in Tasmania (Figure 4.3). 51.2% knew *a fair amount* about the food in Tasmania; 25.8% knew *a lot* about the type of food; 16.3% knew *a little*; 5.0% knew *everything* and only 1.7% knew *nothing at all* about the food in Tasmania.



**Figure 4.3: How much do you know about the food in Tasmania? (N=301)**

#### 4.4.1.3 Food purchasing

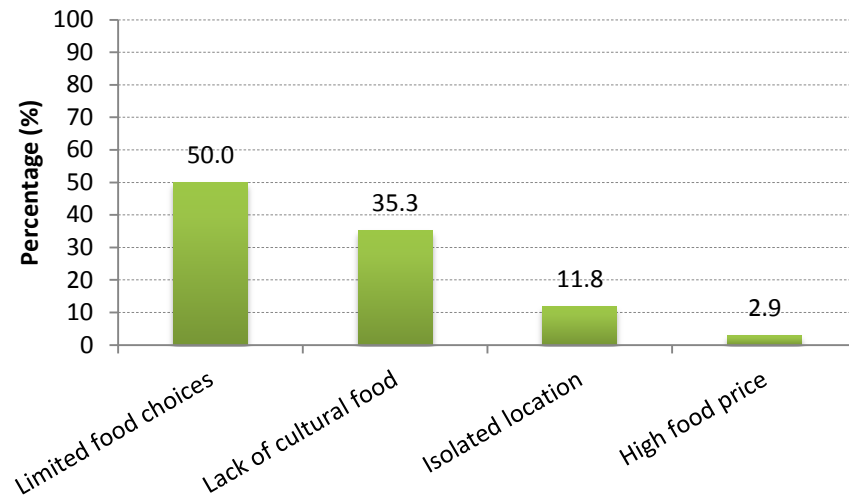
Figure 4.4 demonstrates that the majority (88.7%) of the respondents felt that they had sufficient choice of places to go to buy food. The remainder (11.3%) stated that they did not have sufficient choice.



**Figure 4.4: Do you have sufficient choice where to go to buy food? (N=301)**

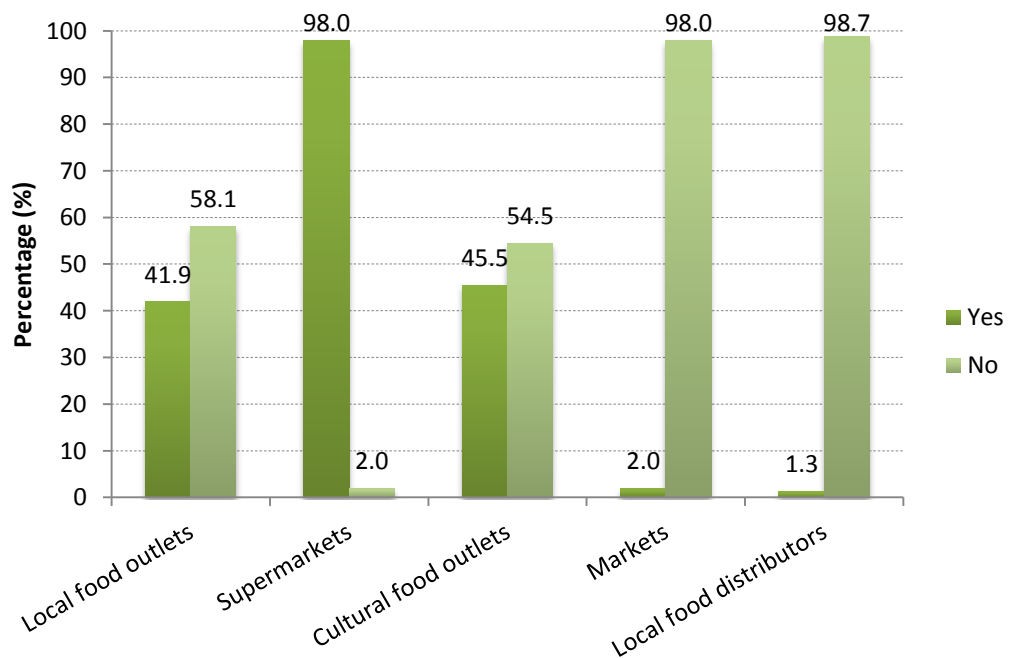
The 11.3% (N=34) who said that they did not have a sufficient choice of places to buy food from gave four reasons for this lack of choice: the limited food choices at the place where they usually shop, the lack of cultural food at the place where they usually shop, isolated location (theirs and/or the place where they usually shop) and the high price of food (Figure 4.5).





**Figure 4.5: Reasons for not having sufficient choice of places to purchase food (N=34)**

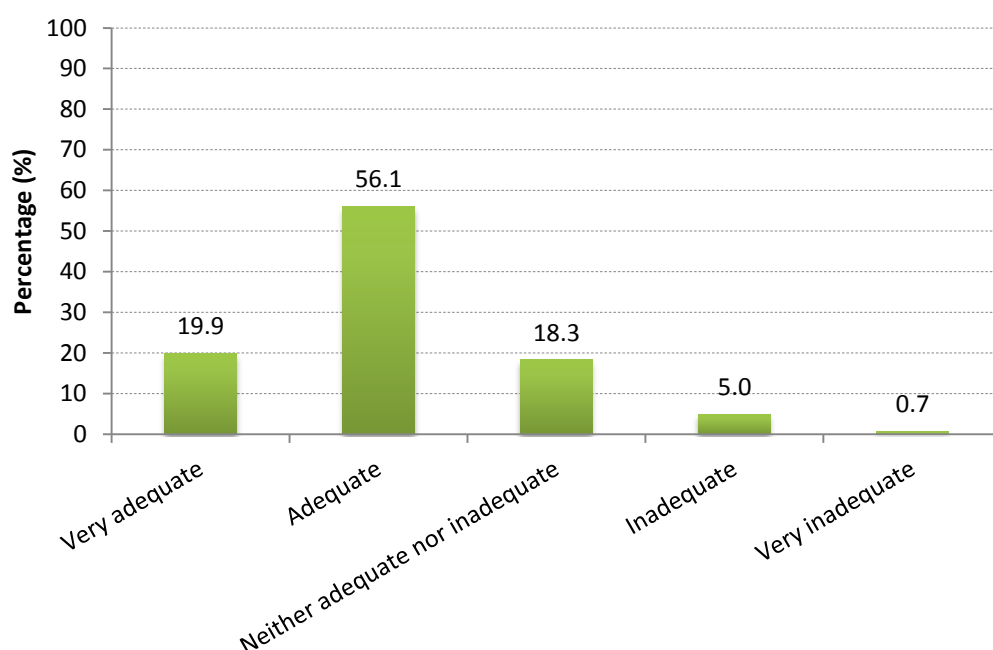
The majority (98.0%) of the respondents bought their food from supermarkets (Figure 4.6), 41.9% shopping at local food outlets (e.g., greengrocer) and 45.5% shopping at cultural food outlets. Only 2% of the respondents bought food from markets and 1.3% went to local food distributors, such as bulk food outlets.



**Figure 4.6: Where do you normally buy food? (N=301)**

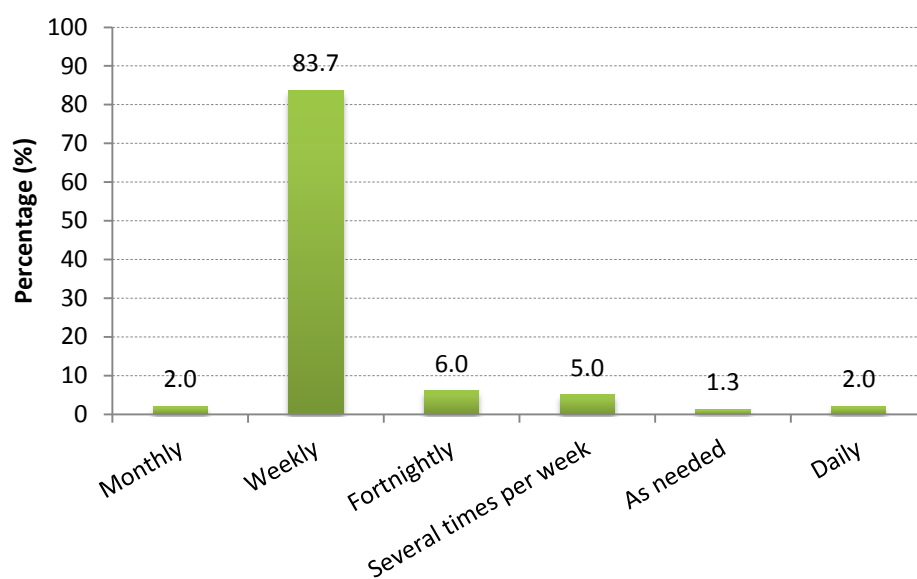
Among the 301 respondents, more than half (56.1%) indicated that the food sources in their areas were *Adequate*; 19.9% answered *Very adequate*; 18.3% were

neutral *Neither adequate nor inadequate*; 5.0% felt that the food sources were *Inadequate*; and only 0.7% stated *Very inadequate* (Figure 4.7).



**Figure 4.7: How adequate are the food sources (from local food outlets, supermarket etc.) in your area? (N=301)**

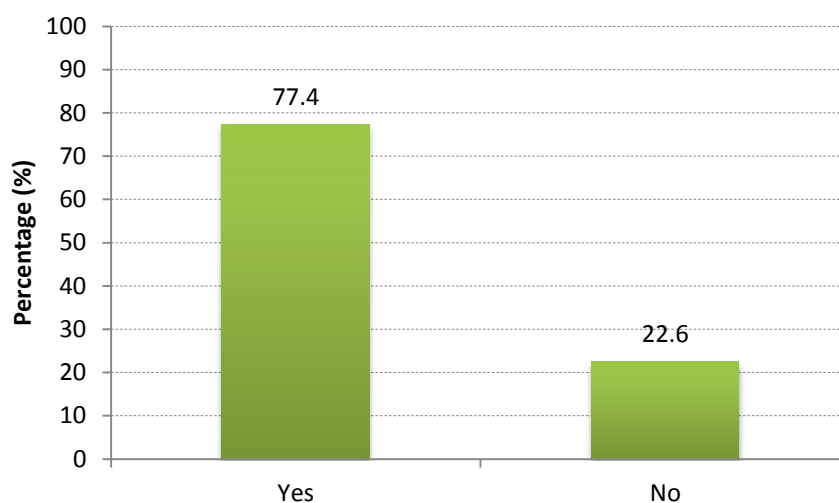
As shown in Figure 4.8, the majority (83.7%) of the respondents shopped for their food weekly; with only 1.3% shopping when and as they needed.



**Figure 4.8: How often do you shop for any of your food? (N=301)**

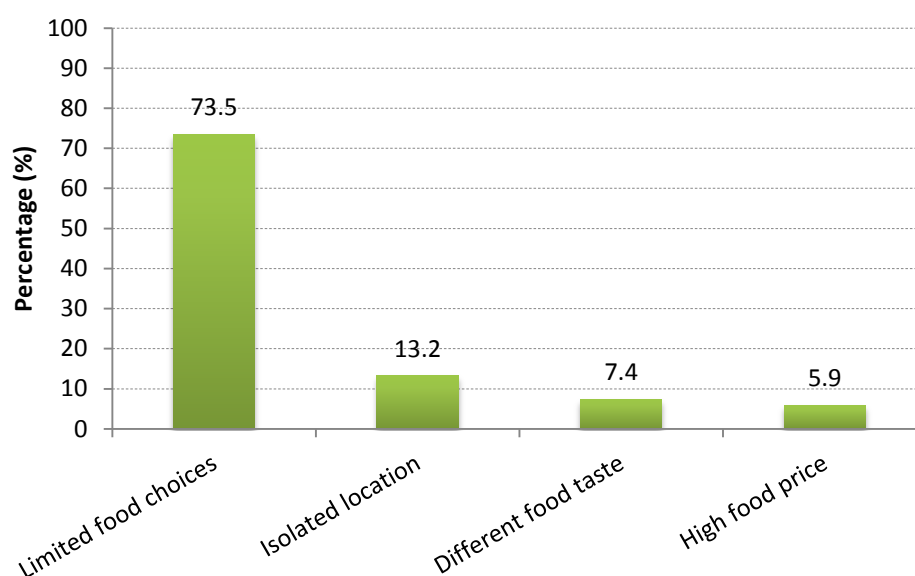
#### 4.4.1.4 Food choice

Figure 4.9 shows that 77.4% of the respondents reported that they had enough food choices in Tasmania while the remaining 22.6% felt that there were not enough food choices.



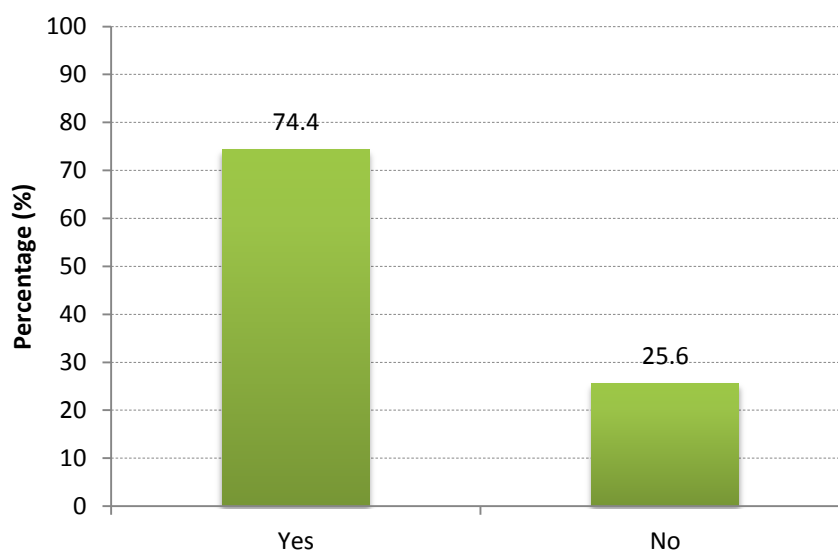
**Figure 4.9: Are there many food choices in Tasmania for you to choose from? (N=301)**

The 22.6% (N=68) of respondents who felt that there was not enough food choices in Tasmania gave four main reasons for this: limited food choices, high food prices, isolated location and different food tastes (Figure 4.10).



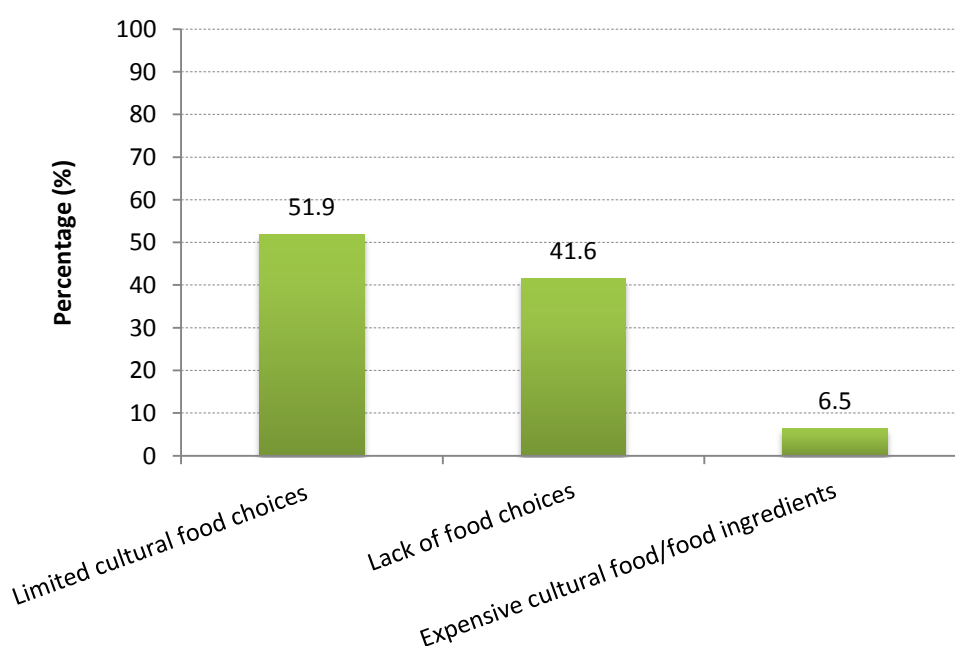
**Figure 4.10: Reasons for not having many food choices (N=68)**

74.4% of the respondents agreed that the food choices available in Tasmania fulfilled their needs, while this was not the case with approximately 25.6% of the respondents (Figure 4.11).



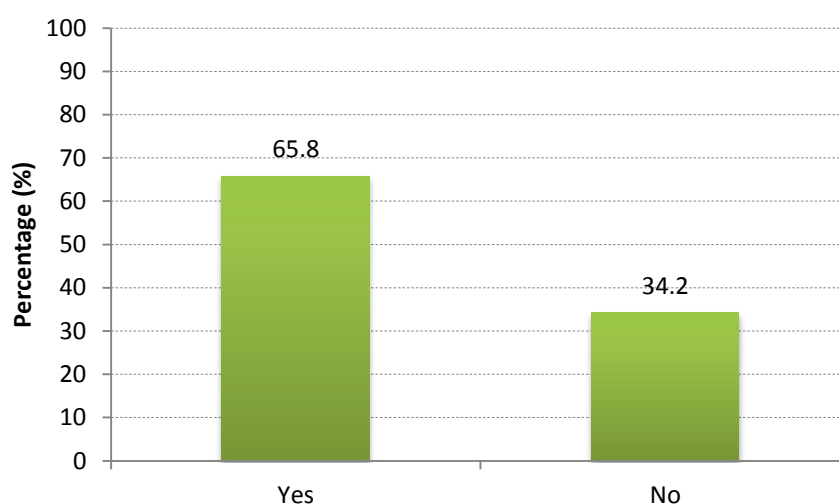
**Figure 4.11: Do the food choices available fulfil your needs? (N=301)**

The 25.6% (N=77) of respondents who felt that the food choices in Tasmania did not fulfil their needs gave three reasons (shown in Figure 4.12): limited cultural food choices, lack of food choices and expensive cultural food/food ingredients.



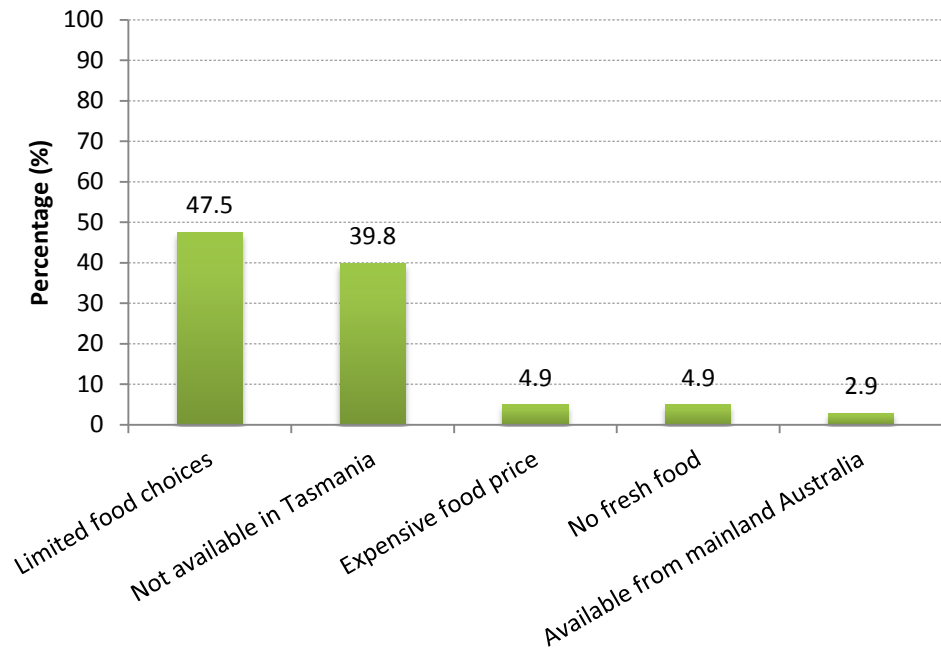
**Figure 4.12: Reasons for the food choices not fulfilling needs (N=77)**

Figure 4.13 shows the migrants' views and experiences regarding availability of traditional food ingredients. 65.8% of the respondents found it easy to get the food ingredients to prepare traditional dishes from their home countries, whereas 34.2% found it difficult.



**Figure 4.13: Do you find it easy to get the food ingredients to prepare traditional dishes from your home country? (N=301)**

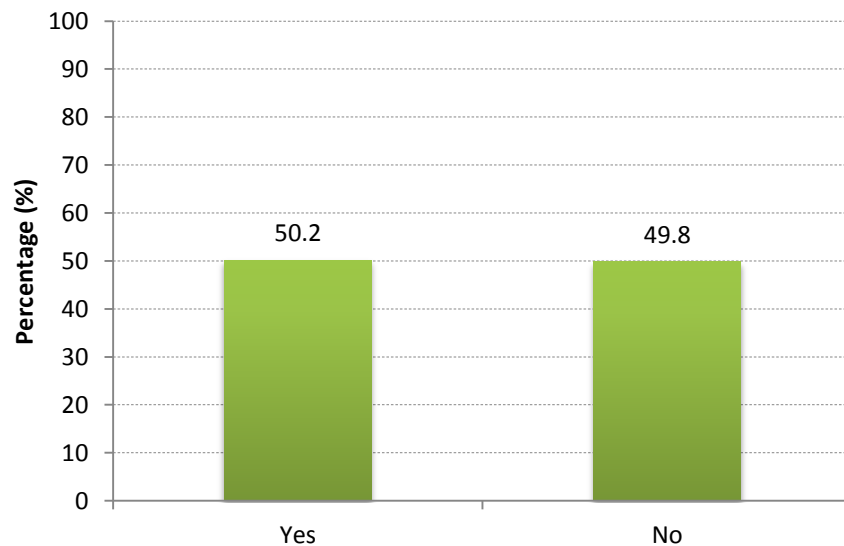
When asked why it was difficult to obtain traditional food ingredients respondents gave the following reasons (Figure 4.14): limited food choices; the ingredients were not available in Tasmania; the ingredients were expensive; there were no fresh food ingredients, and the food ingredients had to be found and accessed from mainland Australia.



**Figure 4.14: Reasons for difficulty in obtaining traditional food ingredients (N=301)**

#### 4.4.2 Food accessibility

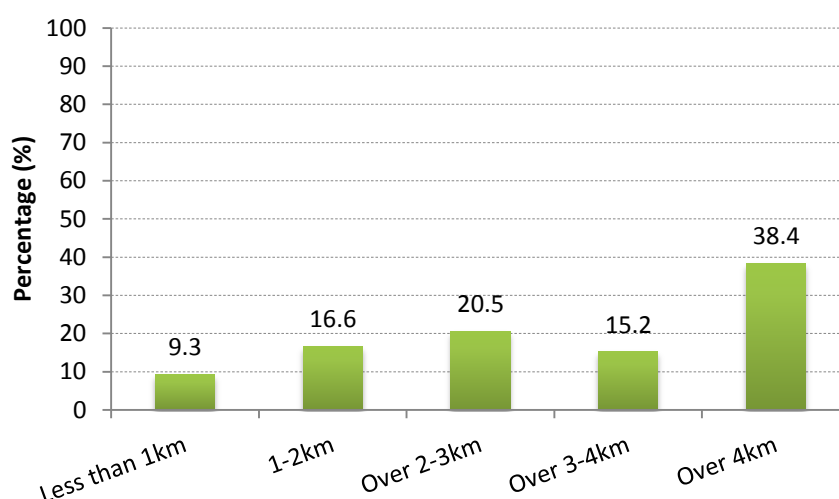
The respondents were equally split between those who felt that they travelled far to access and buy food, and those who did not (Figure 4.15).



**Figure 4.15: Do you often travel far to buy the food that you need? (N=301)**

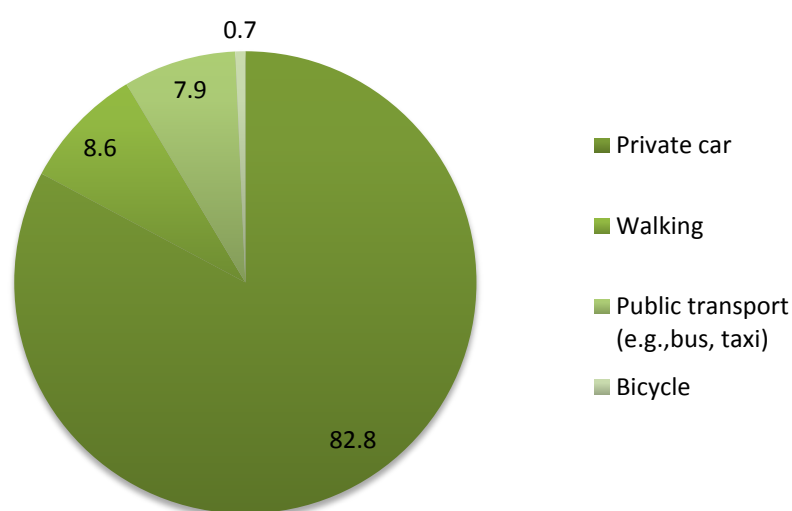
Those who felt that they had travelled far to buy food (49.8%, N=151) were asked about their travel distances to buy food (Figure 4.16), with 38.4% travelling over

4km to buy food. Interestingly 9.3% of the respondents travelled less than 1km to buy food, but still felt that they often travelled far to buy the food that they needed.



**Figure 4.16: Distance travelled to purchase food (N=151)**

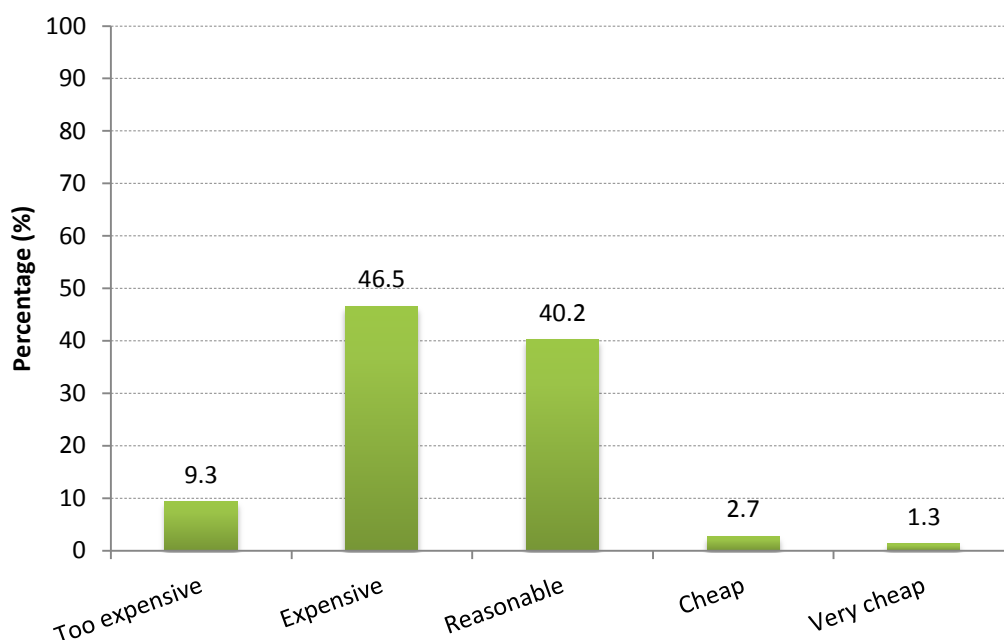
Other than travel distances, the respondents who felt that they had travelled far to buy food (49.8%, N=151) were also asked about what type of transport they used to access the shops where they bought the food (Figure 4.17). The majority (82.8%) drove their own car to the shops when buying food. Only 8.6% walked and 7.9% used public transports for food shopping. It was noted that only one person (0.7%) used a bicycle as their principle mode of transport.



**Figure 4.17: Mode of transport used when buying food (N=151)**

### 4.4.3 Food affordability

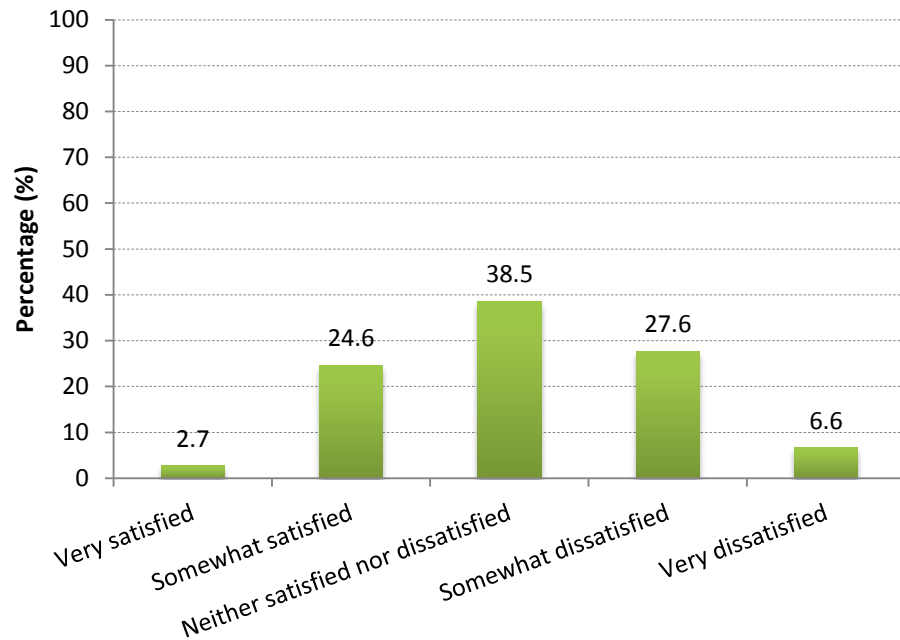
As shown in Figure 4.18, the migrants indicated their perception regarding the price of food in Tasmania. The majority of the respondents rated the food as *Expensive* (46.5%) and *Reasonable* (40.2%). However, 9.3% felt that the food was *Too expensive*; while the remainder considered the food price as *Cheap* (2.7%) and *Very cheap* (1.3%).



**Figure 4.18: How would you rate the price of the food you normally buy? (N=301)**

Responses to the question about the migrants' satisfaction of the current food price were fairly ambivalent, with 38.5% of the respondents *Neither satisfied nor dissatisfied* with current food prices; 27.6% *Somewhat dissatisfied* and nearly the same number (24.6%) *Somewhat satisfied* with current food prices (Figure 4.19).

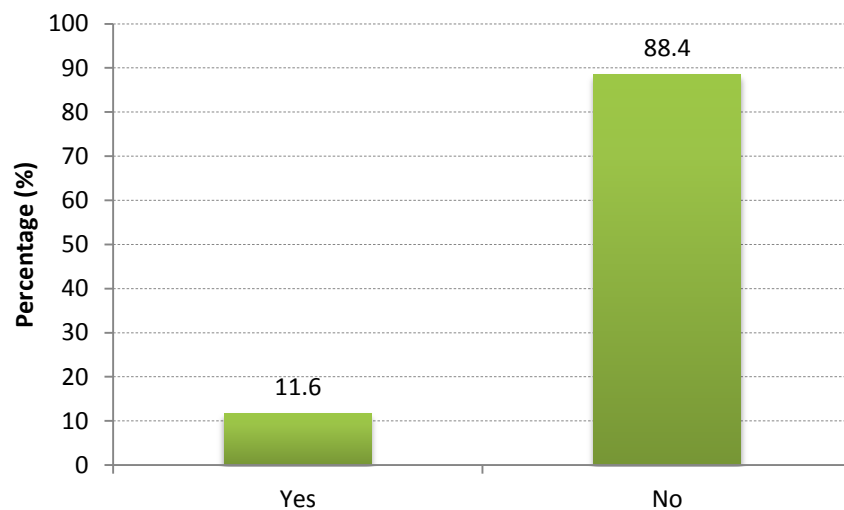




**Figure 4.19: How satisfied are you with the current food price? (N=301)**

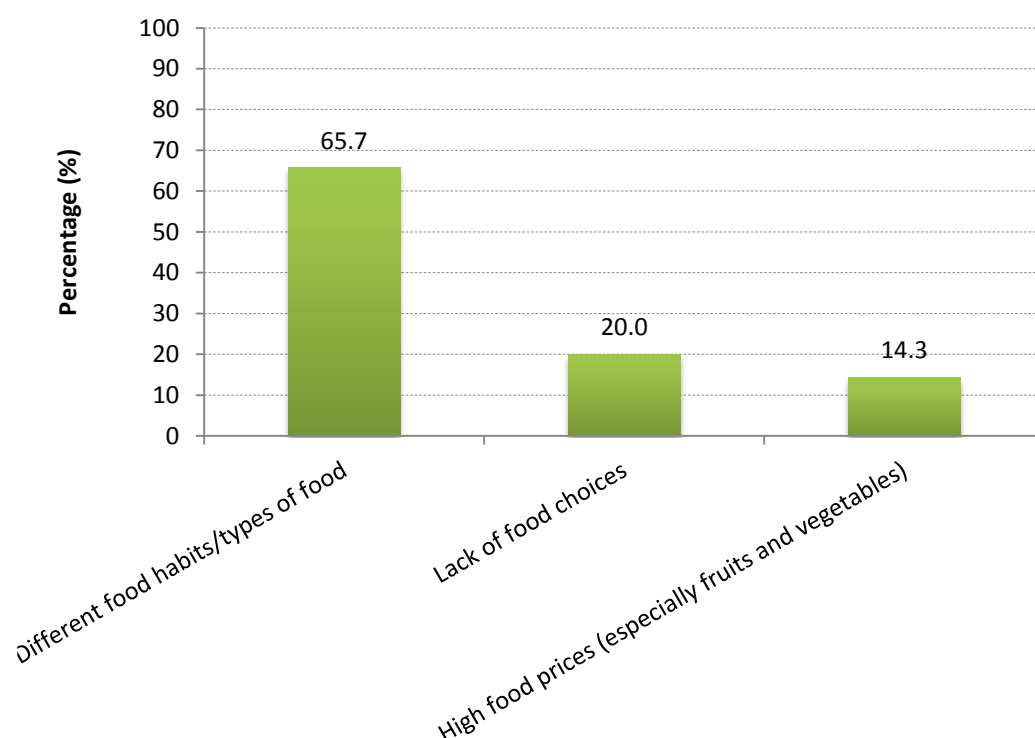
#### 4.4.4 Food consumption

Food consumption refers to the types of food eaten by and the eating habits of migrants in Tasmania. The respondents were asked whether or not they found it difficult to change their eating behaviours after migrating to Tasmania. Figure 4.20 demonstrates that the majority of the respondents (88.4%) did not find it difficult to change their eating habits, while the remainder (11.6%) found it difficult.



**Figure 4.20: Have you found it difficult to change your eating habits in Tasmania? (N=301)**

The 11.6% (N=35) of the respondents who found it difficult to change their eating habits in Tasmania, identified three reasons for this difficulty (Figure 4.21).

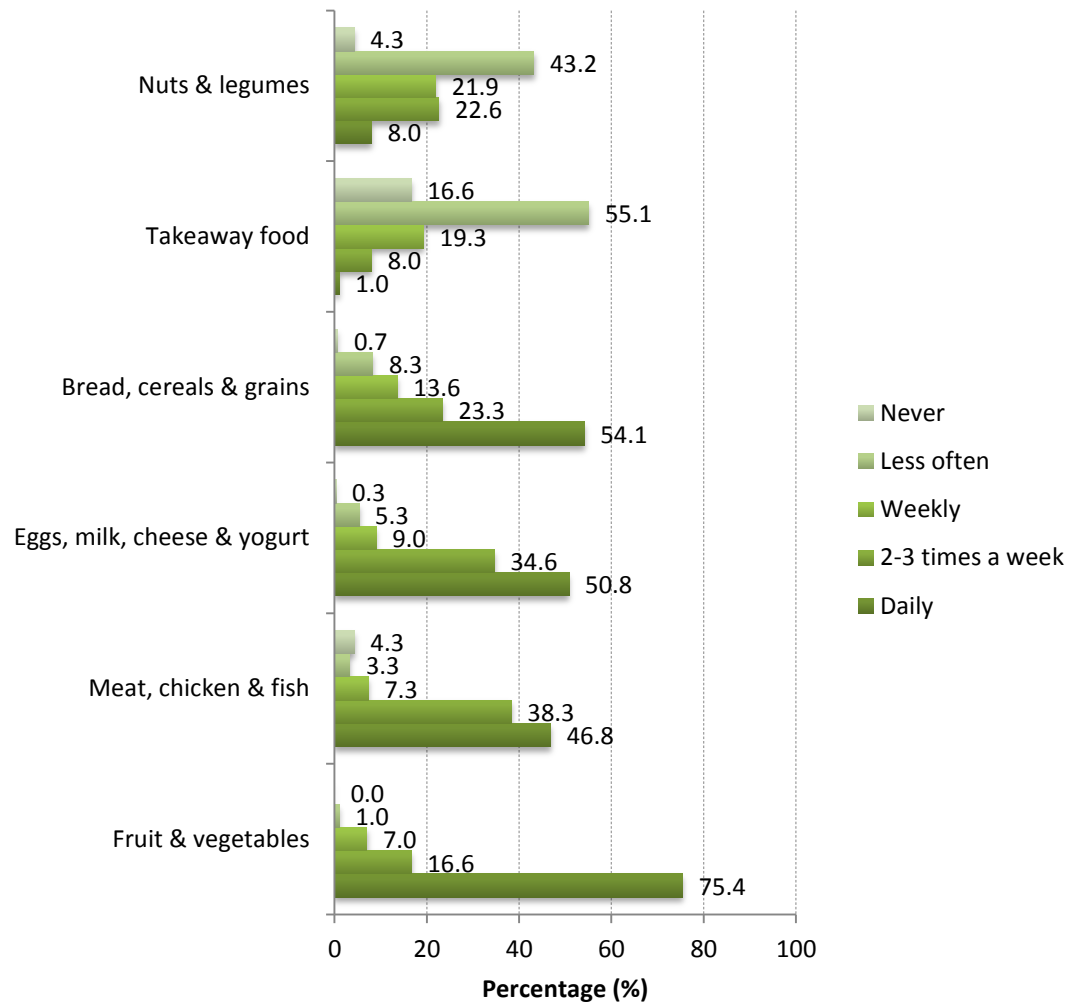


**Figure 4.21: Reasons for difficulty in changing eating habits (N=35)**

Over half (65.7%) found that the types of food available and the food habits in Tasmania were different compared to their home country. A lack of food choices was indicated by 20.0% of the respondents as an additional reason, while 14.3% highlighted that the high food prices especially for fruit and vegetables made it difficult for them to change their eating habits.

#### **4.4.4.1 Frequency of food consumption**

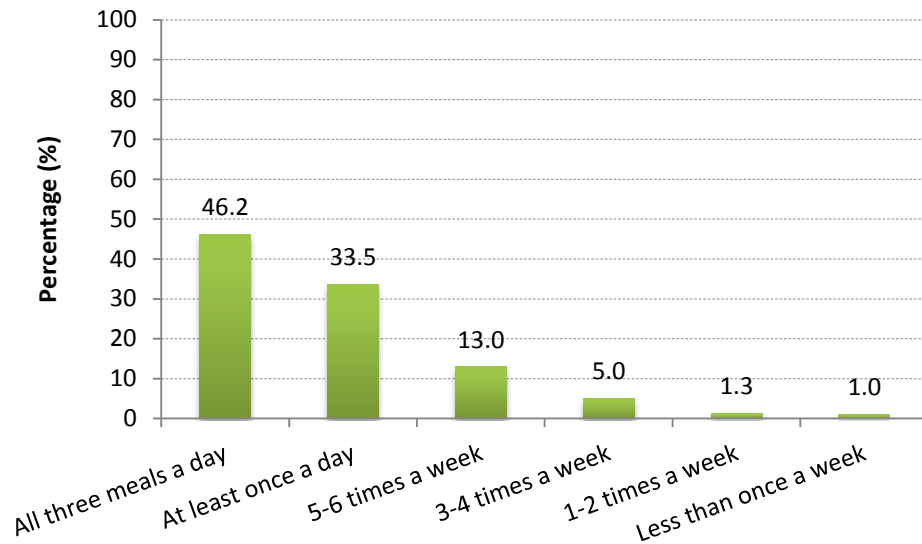
The migrants were asked about which food groups they had eaten in Tasmania and how often they were eaten (Figure 4.22). Of the six food groups, 75.4% of the respondents consumed fruit and vegetables daily, followed by bread, cereals and grains (54.1%), dairy products (50.8%) and protein sources (46.8%). Takeaway food as well as nuts and legumes were included in the daily diet of a small percentage of the sampled migrants (1% and 8% respectively).



**Figure 4.22: The frequency of the consumption of different food groups, expressed as a % of respondents (N=301)**

#### 4.4.4.2 Consumption of homemade food

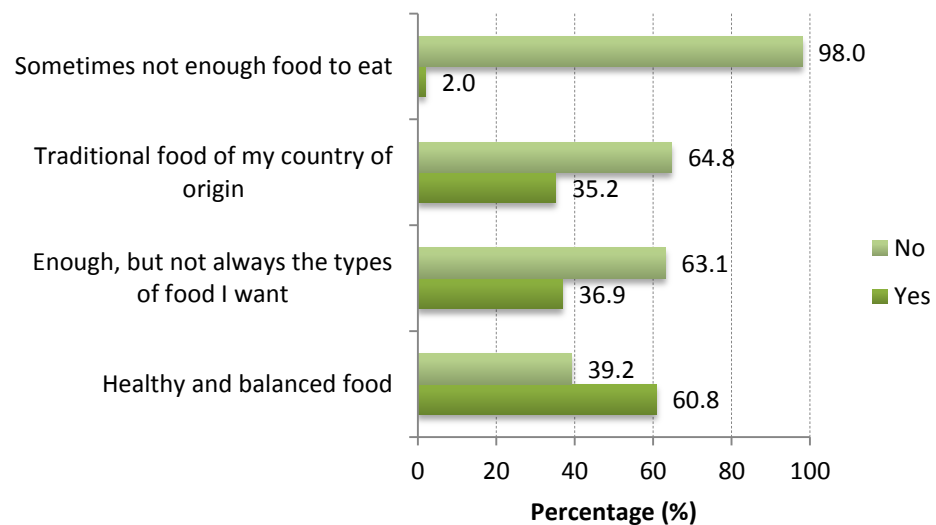
Unlike takeaway food, homemade food is usually a highly recommended choice for healthy eating. In this study, 46.2% of the migrants ate homemade food for all their three meals a day (Figure 4.23). This was followed by 33.5% of the respondents who ate homemade food at least once a day.



**Figure 4.23: How often do you eat homemade food? (N=301)**

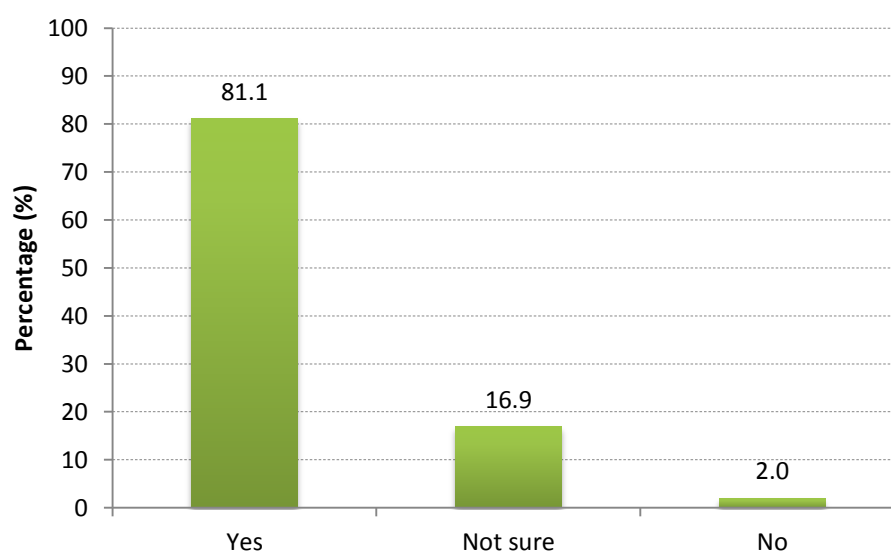
#### 4.4.4.3 Food eaten in the last 12 months

60.8% of the respondents felt that the food they had eaten in the last 12 months was healthy and balanced, with 36.9% indicating that they had enough food but that it was not always the type of food they wanted (Figure 4.24). 35.2% reporting having eaten traditional food from their country of origin in the last 12 months. Nearly all the respondents had had enough food to eat over the last 12 months, although there were still 2.0% who sometimes did not have enough food to eat.



**Figure 4.24: Food eaten in the last 12 months (N=301)**

The migrants were asked whether they felt that they obtained good nutrition from the food they ate (Figure 4.25). The majority (81.1%) of the respondents agreed that they received good nutrition from the food they ate while 16.9% were not sure and only 2.0% felt they did not have good nutrition from the food that they ate.

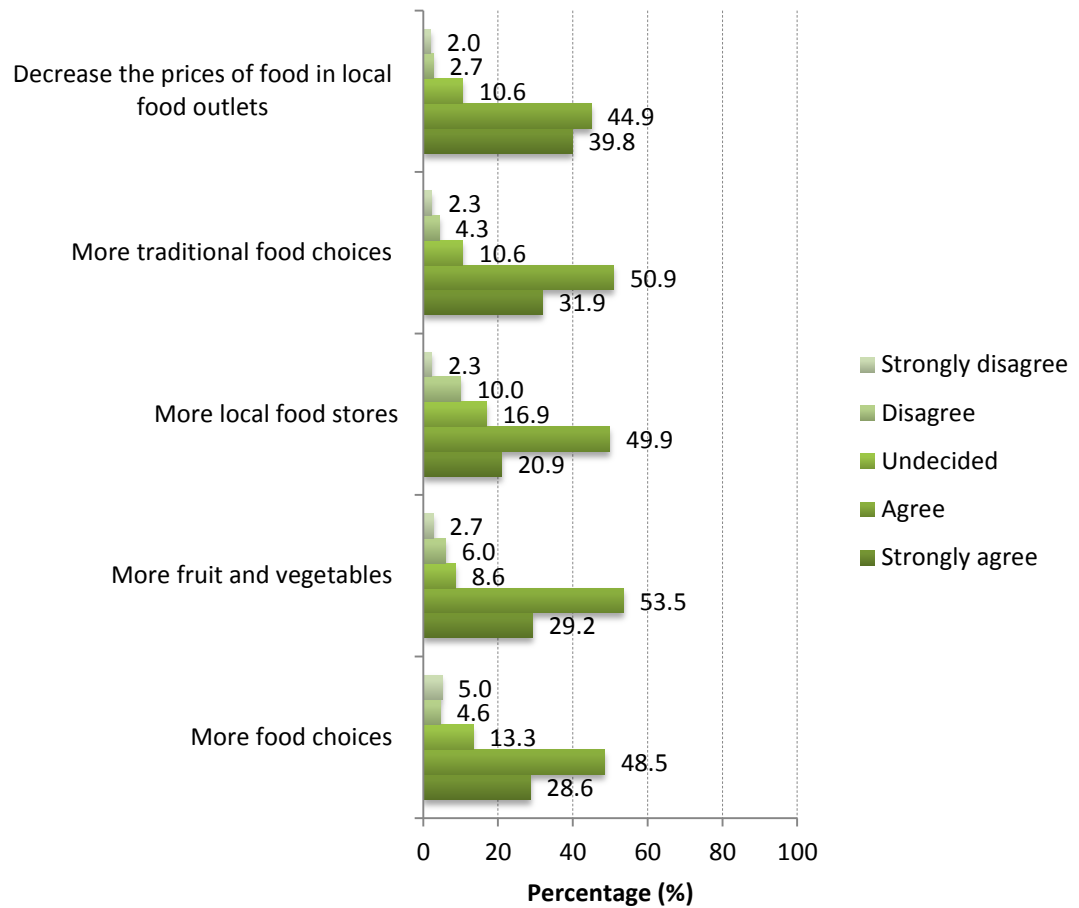


**Figure 4.25: Do you feel that you get good nutrition from the food you eat? (N=301)**

## **4.5 Views on food security in Tasmania**

### **4.5.1 Views on food availability and affordability**

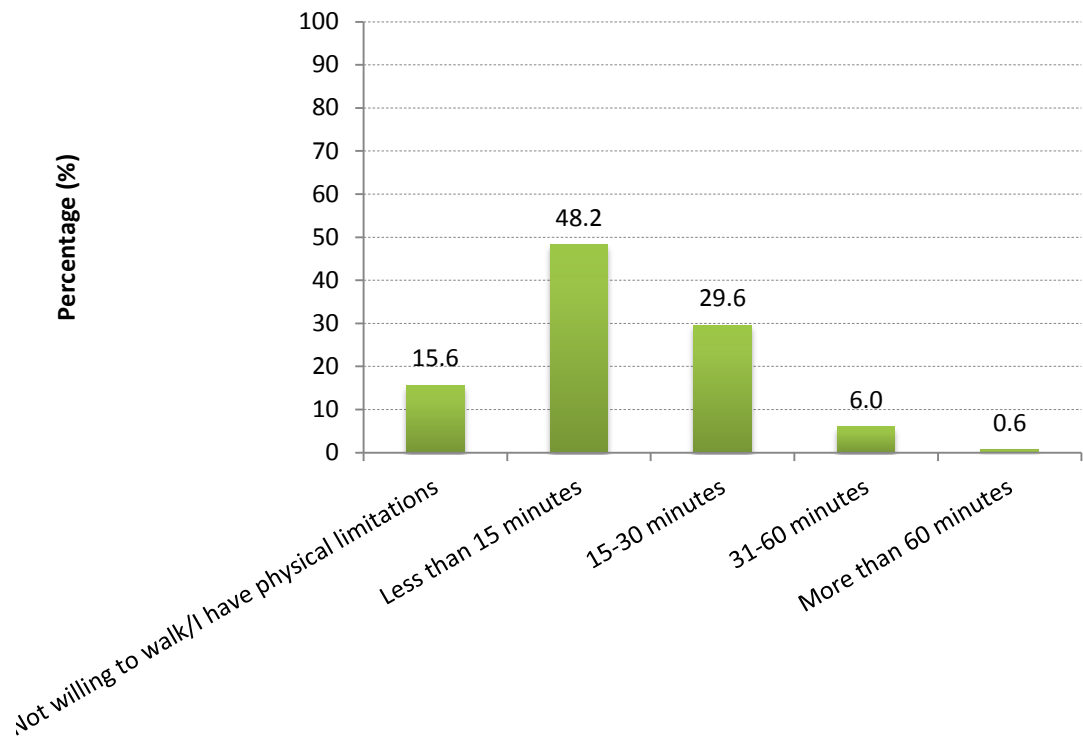
Figure 4.26 shows the migrants' views regarding food availability and affordability in Tasmania. 53.5% of the respondents agreed that more fruit and vegetables should be made available in local food shops. The respondents shared relatively similar views regarding the availability of traditional food choice and local food stores, as shown in Figure 4.26. Moreover, 48.5% wanted to have more food choices while 44.9% desired lower food prices.



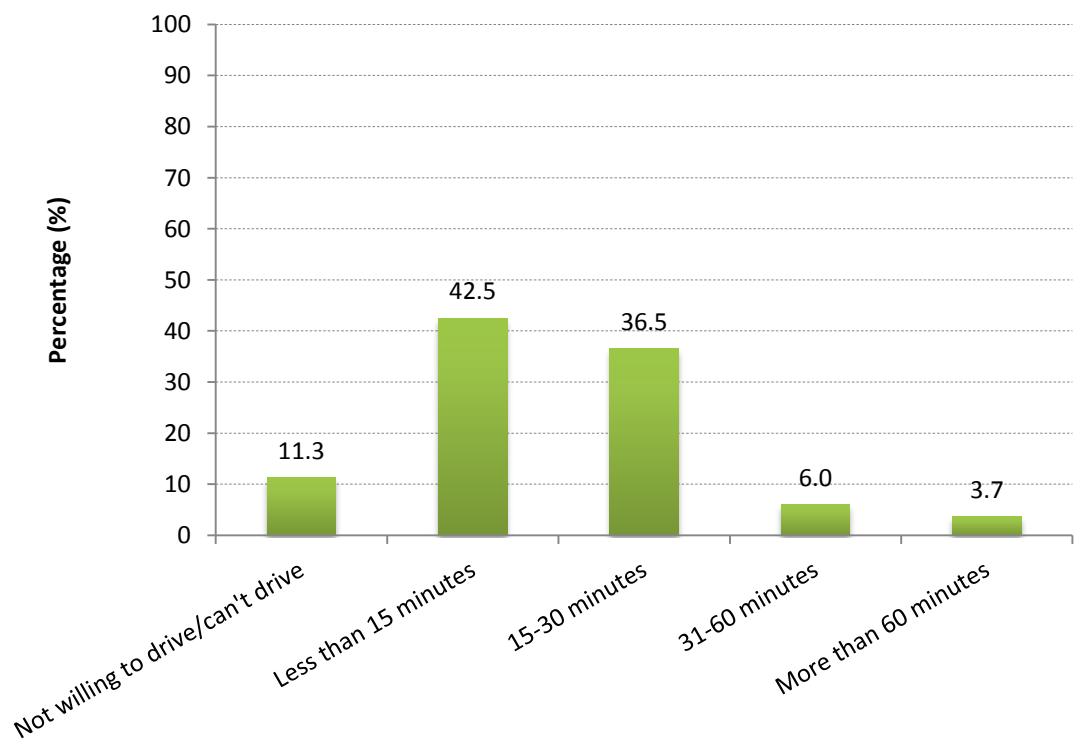
**Figure 4.26: Views on food availability and affordability (N=301)**

#### 4.5.2 Views on food accessibility

The migrants were asked how far they were willing to travel to buy the food that they needed if (a) walking (Figure 4.27) and (b) driving (Figure 4.28), travel time was used as a proxy for distance.



**Figure 4.27: How far are you willing to travel to get the food you need? (a) Walking (N=301)**



**Figure 4.28: How far are you willing to travel to get the food you need? (b) Driving (N=301)**

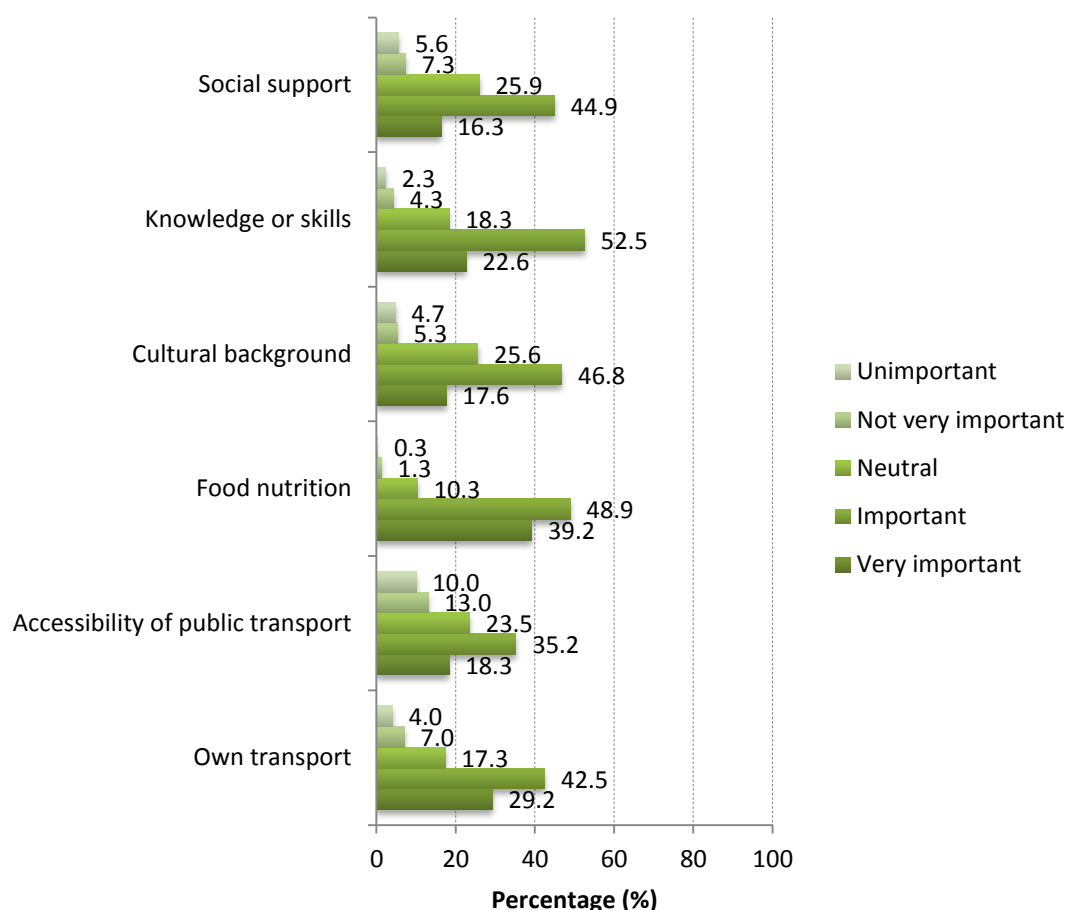
As illustrated in Figure 4.27, nearly half of the respondents (48.2%) said that they were only willing to walk for less than 15 minutes to get the food they need. 29.6% were willing to walk for 15 to 30 minutes to get the food they needed. 15.6% of the respondents were not willing to walk, or they had a physical limitation that affected their ability to walk to obtain food. A small percentage (6.0%) were willing to walk 31 to 60 minutes to get food, and only 0.6% were willing to walk more than an hour.

When asked about the driving time the respondents were willing to undertake to get the food they required, 42.5% were willing to travel less than 15 minutes, as demonstrated in Figure 4.28. 36.5% said they were willing to drive 15 to 30 minutes to get food, while 11.3% reported that they were not willing to drive or could not drive. Only 6.0% indicated that they were willing to spend 31 to 60 minutes driving to the shops with the remaining 3.7% stating they were willing to travel more than an hour.

#### **4.5.3 Views on the importance of factors that influence food security in Tasmania**

The respondents were asked to rate the importance of six factors that were likely to influence their food security in Tasmania. 39.2% of the respondents rated food nutrition as a very important aspect in food security, followed by having own transport (29.2%), equipped with knowledge or skills in food preparation (22.6%), access to public transport (18.3%), cultural background (17.6%) and social support (16.3%), as shown in Figure 4.29.





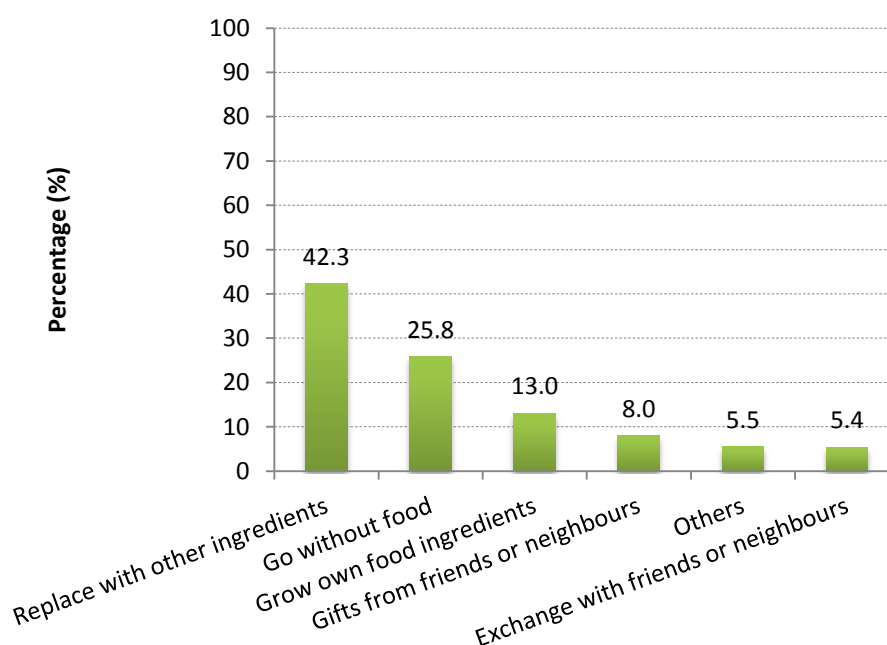
**Figure 4.29: The importance of factors that influence food security in Tasmania (N=301)**

## 4.6 Attitudes to coping strategies

### 4.6.1 Strategies to obtain food ingredients that cannot be purchased from local shops

Figure 4.30 shows the six strategies that migrants said they used to obtain food ingredients that they were unable to purchase from shops. Replacing the food ingredients that were not available from the shops with other ingredients was the most popular strategy (42.3%), followed by going without the particular ingredient/s (25.8%). 13.0% grew their own ingredients with 8.0% accepting food as gifts from friends or neighbours and 5.4% exchanging food with friends or neighbours. 29 respondents (5.5%) highlighted the category *Other* which involved accessing the ingredients from elsewhere (not Tasmania) and feeling that there was no alternative to the missing ingredient/s. Of the 29 respondents that chose the

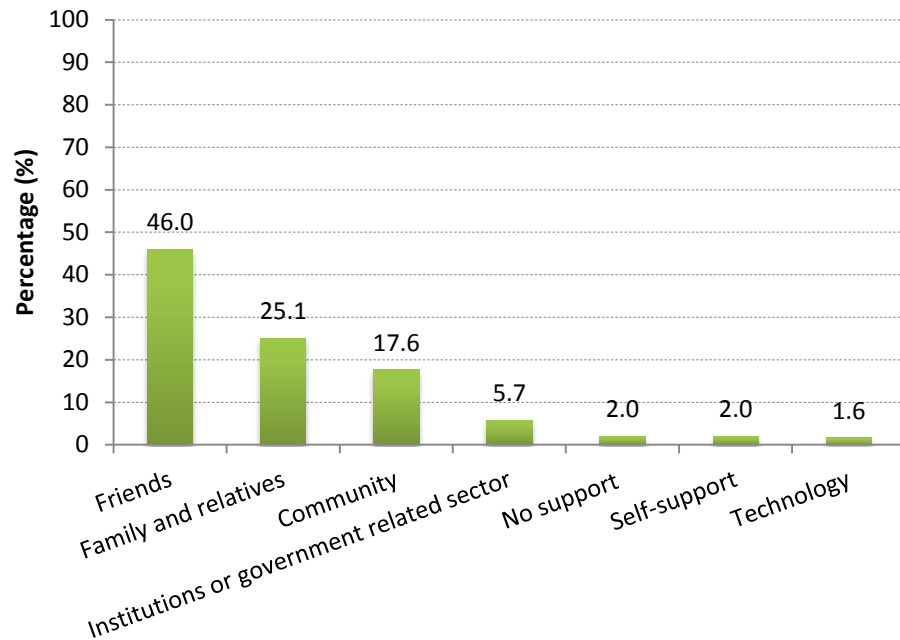
*Other* strategy option, the majority (86.2%) chose to access specific ingredients from other places, such as their home country and mainland Australia, when they were unable to obtain specific ingredients locally. The remainder (13.8%) said that they had no alternative to solve this problem.



**Figure 4.30: Strategies to obtain food ingredients that cannot be bought from shops (N=301)**

#### **4.6.2 Support to improve food access in Tasmania**

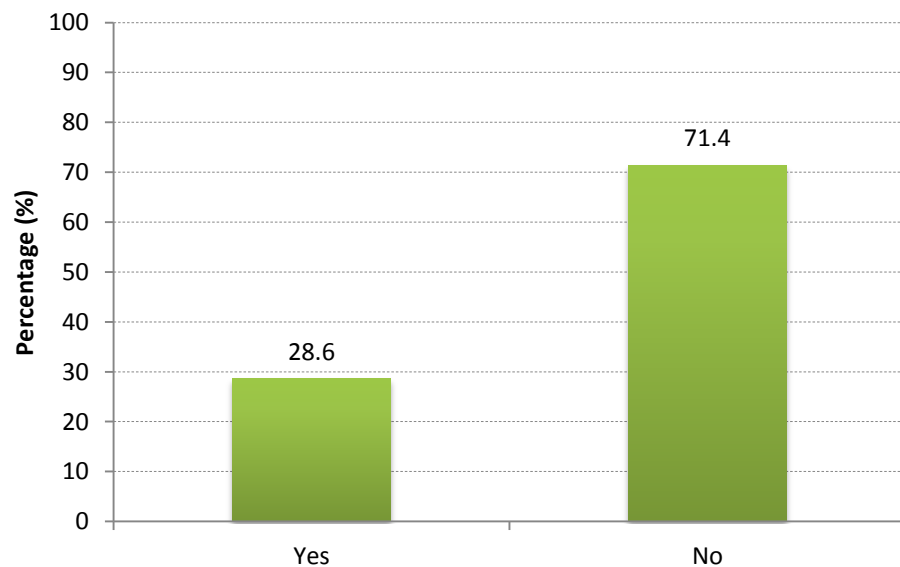
The support migrants receive to improve their access to food in Tasmania is shown in Figure 4.31. The most common supports were friends (46.0%), family and relatives (25.1%), and community (17.6%). Only 5.7% of the respondents indicated that they received support to improve their food access in Tasmania from institutional or government related sectors, such as Migrant Resource Centres or cultural associations.



**Figure 4.31: Support to improve food access in Tasmania (N=301)**

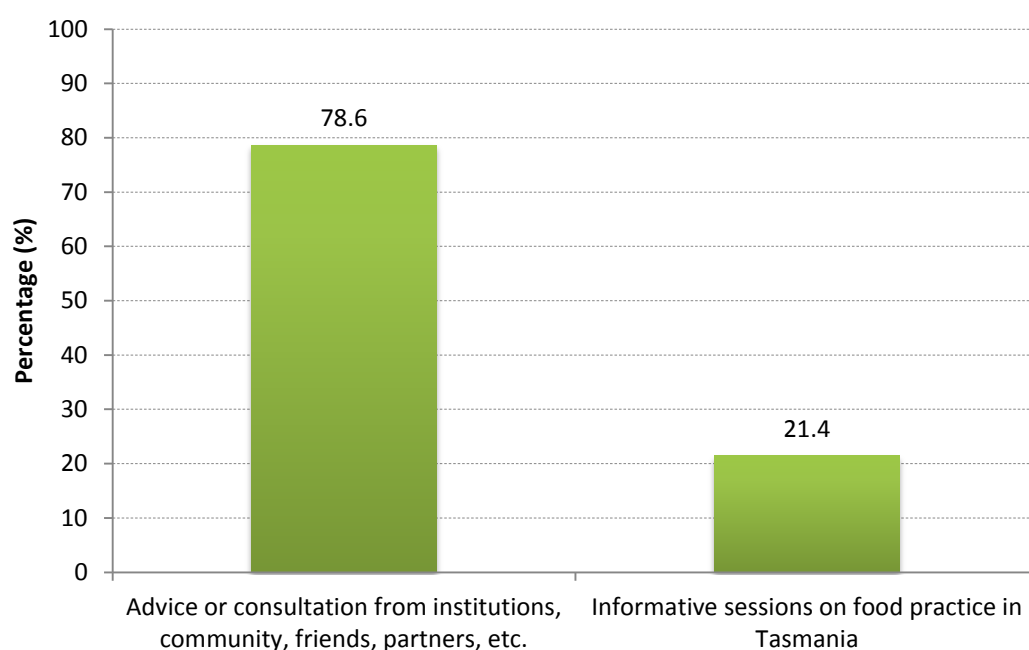
#### **4.6.3 Assistance to adapt to the food practices in Tasmania**

Assistance is often needed by migrants to adapt to the food practices in their new environment. The migrants studied were asked whether they had received any assistance to adapt to the food practices in Tasmania (Figure 4.32). 28.6% of the respondents indicated they had or did receive assistance.



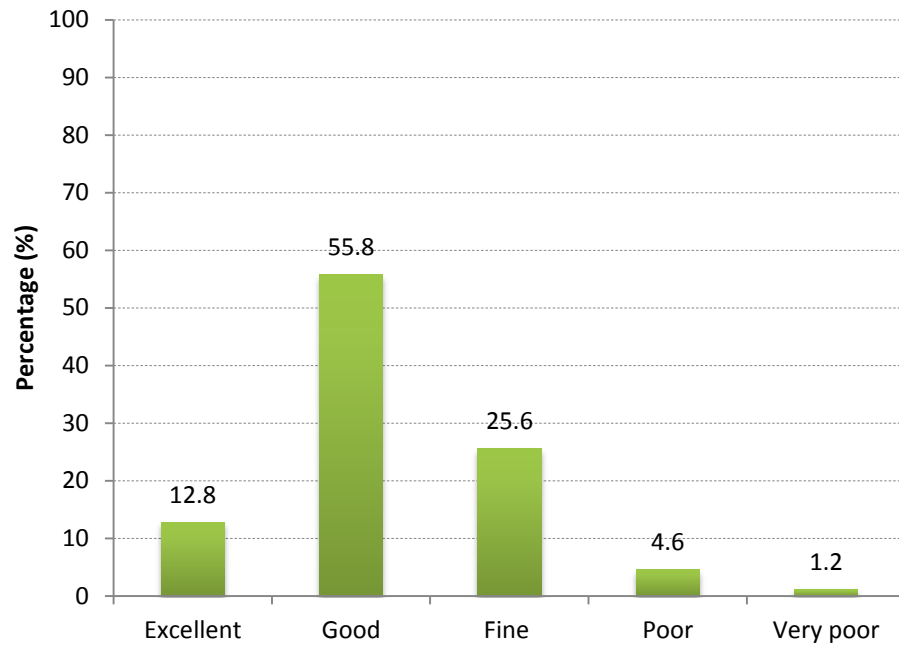
**Figure 4.32: Do you receive any assistance to adapt to the food practices in Tasmania? (N=301)**

Of the 28.6% (N=86) respondents who indicated that they had or did receive assistance, 78.6% stated that they received advice or consultation from institutions, community, friends or partners (as shown in Figure 4.33). 21.4% reported that other support was received from information sessions such as cooking classes, seminars or workshops on food practice in Tasmania. When asked about the effectiveness of the assistance they received, all (100%) the respondents believed that the assistance was helpful.



**Figure 4.33: Types of assistance received by migrants to adapt to the food practices in Tasmania (N=86)**

In addition to the effectiveness of the assistance the respondents received, they were asked to rate the quality of the assistance. The rating of the quality of the assistance was overwhelming positive with 55.8% rating the assistance as *Good*; 25.6% *Fine* and 12.8% as *Excellent* (Figure 4.34).



**Figure 4.34: How would you rate the assistance you receive? (N=86)**

## **4.7 Analysis of factors affecting the experiences, views and attitudes of migrants towards food security in Tasmania**

In the previous sections, the responses of the migrants in terms of their experiences, views and attitudes towards food security were presented. This section will examine the relationship between the questionnaire respondents' demographic profiles and their experiences, views and attitudes towards food security.

### **4.7.1 Factors that affect the experiences of food security by migrants**

This section explores the association and relationship between the questionnaire respondent's characteristics such as gender, region of origin, length of stay in Tasmania, English language proficiency level, marital status and educational level (independent variables) and their experiences with food security and those factors affecting their food security experiences in Tasmania (dependent variables), using Chi-square ( $\chi^2$ ) and ordinal logistic regression.

It must be noted that only those factors that are shown to be significant (p-values  $\leq 0.05$ ) are reported. The findings are discussed in detail below.

#### 4.7.1.1 Knowledge about food

The gender, length of stay in Tasmania and English language proficiency level of a migrant were shown to be significantly correlated with the migrants' level of knowledge about food as demonstrated in Table 4.2, Table 4.3 and Table 4.4. There was no statistical significance between any other variables.

##### 4.7.1.1.1 Gender and food knowledge

Table 4.2 indicates that there was a statistically significant relationship between the gender of a migrant and their level of knowledge about food in Tasmania (Wald  $\chi^2$  (1) = 4.899,  $p = 0.027 < 0.05$ ). Male migrants were 1.664 times less likely to know about food in Tasmania than female migrants.

**Table 4.2: Ordinal logistic regression of gender and food knowledge in Tasmania**

Gender	OR	95%CI	Wald $\chi^2$	df	p-value
Female	Reference				
Male	1.664	1.060 to 2.612	4.899	1	0.027

##### 4.7.1.1.2 Length of stay in Tasmania and food knowledge

Table 4.3 indicates that there was a statistically significant relationship between the amount of time a migrant had lived in Tasmania and their level of knowledge about food in Tasmania (Wald  $\chi^2$  (3) = 20.047,  $p = 0.000 < 0.05$ ). The respondents who had lived in Tasmania for less than one year were shown to be 3.658 times less likely to know about food in Tasmania than those who had lived in Tasmania over three years. This relationship remained significant but decreased with time, as those who had lived two to three years in Tasmania were 2.968 times less likely to know about food in Tasmania than migrants who had lived in Tasmania for over three years.

**Table 4.3: Ordinal logistic regression of length of stay in Tasmania and knowledge about food in Tasmania**

Length of stay in Tasmania	OR	95%CI	Wald $\chi^2$	df	p-value
Over 3 years	Reference				
Less than 1 year	3.658	1.882 to 7.111	14.626	1	0.000
Over 2 to 3 years	2.968	1.486 to 5.929	9.494	1	0.002

#### 4.7.1.1.3 English language proficiency and food knowledge

Table 4.4 indicates that there was a statistically significant relationship between the English proficiency level of a migrant and their level of knowledge about food in Tasmania (Wald  $\chi^2$  (2) = 13.058,  $p = 0.001 < 0.05$ ). The respondents who self-graded their English proficiency level as *Fine* were 2.921 times less likely to know about food in Tasmania than those who graded their English language proficiency level as *Excellent*.

**Table 4.4: Ordinal logistic regression of English language proficiency level and knowledge about food in Tasmania**

English language proficiency level	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Excellent</b>	Reference				
<b>Fine</b>	2.921	1.590 to 5.366	11.936	1	0.001

#### 4.7.2 Factors that affect the views of migrants on food security in Tasmania

##### 4.7.2.1 View on increasing food choices in local food outlets

The data analysis (Figure 4.26) showed that 77.1% of the migrant respondents *Agreed* and *Strongly agreed* that there needed to be an increase in food choices in local food outlets.

**Table 4.5: Ordinal logistic regression of region of origin and view on increasing food choices in local food outlets**

Region of origin	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Non-Asia</b>	Reference				
<b>Asia</b>	2.581	1.427 to 4.668	9.838	1	0.002

**Table 4.6: Ordinal logistic regression of marital status and view on increasing food choices in local food outlets**

Marital status	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Widowed</b>	Reference				
<b>Single/never married</b>	9.959	2.148 to 46.174	8.624	1	0.003
<b>Married</b>	4.533	1.188 to 17.301	5.856	1	0.027

Table 4.5 shows that there was a statistically significant relationship between the region of origin of the migrant and their view of the need for an increase in food choices in local food outlets (Wald  $\chi^2$  (1) = 9.838,  $p = 0.002 < 0.05$ ). Table 4.6 shows that there was a statistically significant relationship between the marital status of the migrant and their view of the need for increasing food choices in local food outlets (Wald  $\chi^2$  (3) = 8.840,  $p = 0.031 < 0.05$ ). Those respondents from Asia were 2.581 times more likely to agree that there needed to be an increase in the food choices in local food outlets than those from other regions. Migrants who were single, had never married and were married were more likely to agree that there needed to be an increase in the food choices in local food outlets than those respondents who were widowed.

#### 4.7.2.2 View on increasing traditional food choices for people from different countries/cultures

The data analysis (Figure 4.26) showed that 82.8% of the respondents *Agreed* and *Strongly agreed* that they would like to have more traditional food choices in local stores. Table 4.7 shows that there was a statistically significant relationship between the region of origin of the migrant and their view that they would like to have more traditional food choices in local stores (Wald  $\chi^2$  (1) = 13.327,  $p = 0.000 < 0.05$ ). The Asian respondents were shown to be 2.832 times more likely to want an increase in the traditional food choices than respondents from other regions.

**Table 4.7: Ordinal logistic regression of region of origin and view on increasing traditional food choices for people from different countries/culture**

Region of origin	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Non-Asia</b>	Reference				
<b>Asia</b>	2.832	1.619 to 4.953	13.327	1	0.000

#### 4.7.2.3 View on lowering the food prices in local food outlets

The data analysis (Figure 4.26) showed that 84.7% of the respondents *Agreed* to *Strongly agreed* that they would like lower food prices in local food outlets. Table 4.8 shows that there was a statistically significant relationship between the educational level of a migrant and their view that they would like lower food prices in local food outlets (Wald  $\chi^2$  (2) = 8.657,  $p = 0.013 < 0.05$ ). The respondents with tertiary qualifications were 3.577 times more likely to agree that food prices should



be lower than those migrants who completed primary school. There was no statistically significant relationship between the other educational levels of the migrants and the view that they would like lower food prices in local food outlets.

**Table 4.8: Ordinal logistic regression of educational level and view on lowering the food prices in local food outlets**

Educational level	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Completed primary school</b>	Reference				
<b>Tertiary/university qualification</b>	3.577	1.502 to 8.516	8.292	1	0.004

#### 4.7.2.4 The importance of access to public transport to the food security of migrants in Tasmania

53.5% of the migrant respondents rated access to public transport as *Important* to *Very important* for food security (Figure 4.29). Table 4.9 shows that there was a statistically significant relationship between a migrant's English language proficiency level and the level of importance of given to access to public transport for food security (Wald  $\chi^2$  (2) = 6.235,  $p = 0.044 < 0.05$ ). Migrants with self-assessed English language proficiency levels as *Good* were 1.854 times more likely to view access to public transport as an important influence on food security when compared to those migrants with an *Excellent* English language proficiency level. There was no statistically significant relationship between other English language proficiency levels and the level of importance given to access to public transport for food security.

**Table 4.9: Ordinal logistic regression of English language proficiency level and the importance of access to public transport influencing food security**

English language proficiency level	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Excellent</b>	Reference				
<b>Good</b>	1.854	1.141 to 3.010	6.225	1	0.013

#### 4.7.2.5 The importance of cultural background to the food security of migrants in Tasmania

The data analysis (Figure 4.29) demonstrated that 64.4% of the migrant respondents rated cultural background as an *Important* to *Very important* influence on the food security of migrants in Tasmania. Table 4.10 shows that there was a

statistically significant relationship between a migrant's region of origin and their view of the importance of cultural background as an influence on food security (Wald  $\chi^2$  (1) = 5.194,  $p = 0.023 < 0.05$ ). Asian migrants viewed cultural background as more important to impact food security than migrants from other regions.

Table 4.11 shows that there was a statistically significant relationship between a migrant's English language proficiency and their view of the importance of cultural background as an influence on food security (Wald  $\chi^2$  (2) = 10.626,  $p = 0.005 < 0.05$ ). The migrants with *Good* English language proficiency levels indicated that cultural background was more likely to influence food security when compared to migrants with *Excellent* English language proficiency level. There was no statistical significance between other English language proficiency levels.

**Table 4.10: Ordinal logistic regression of region of origin and the importance of cultural background influencing food security**

Region of origin	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Non-Asia</b>	Reference				
<b>Asia</b>	1.867	1.091 to 3.195	5.194	1	0.023

**Table 4.11: Ordinal logistic regression of English language proficiency level and the importance of cultural background influencing food security**

English language proficiency level	OR	95%CI	Wald $\chi^2$	df	p-value
<b>Excellent</b>	Reference				
<b>Good</b>	2.151	1.271 to 3.641	14.626	1	0.004

## 4.8 Summary

This chapter has presented the results of questionnaire and has provided some snapshots into the experiences and views of migrants in Tasmania concerning their food security, and their attitudes to any coping strategies that they used to maximise their food security in Tasmania. These results address the research questions developed earlier in the study. A summary of the key findings gathered from the 301 migrant respondents is provided below:

- The large majority of the sampled migrants have not experienced a situation where they have not had food since they have lived in Tasmania. They have good information about food in Tasmania, including where to buy food and choice of food. Most migrants went once a week to the supermarket for food shopping. In terms of food accessibility, half of the respondents travelled over 4km to buy food using their own private car. Nearly half of the respondents indicated that the food in Tasmania was expensive; however, it was still affordable. In most cases, the majority of the respondents ate fruit and vegetables daily. Homemade food was the most commonly consumed meal for each of the three meals in each day and for at least one meal each day.
- The migrant respondents agreed that more food choices including fruit, vegetables and traditional food should be made available in local food stores and that the food price should be lowered. Most of the respondents were not willing to walk or drive more than 15 minutes to buy food. The migrants identified six factors that influenced food security: knowledge/skills, food nutrition, cultural background, social support, own transport and the accessibility of public transport.
- When access to specific food ingredients in the shops was unavailable, the migrant respondents chose to replace the unavailable ingredients with other ingredients, or went without the particular food item. In order to improve food access in Tasmania friends, family, relatives and community were the main supports to migrants. Of the 301 respondents in the study, only 28.6% received assistance to adapt to food practices in Tasmania. Those that received assistance reported that the assistance was useful and good.
- The gender, English language proficiency level and length of stay in Tasmania of the migrant respondents were identified as indicators of their experiences of food security in Tasmania. For instance, the migrants who had lived over three years in Tasmania had more knowledge about food in Tasmania.
- The region of origin, marriage status, and highest education level of the migrant respondents were significantly correlated with their views on food availability and affordability in Tasmania. In addition, English language proficiency level and region of origin were identified as factors that were closely related to the view

by migrants of the importance of access to public transport and cultural background to food security. For example, migrants who came from Asia and have good English language proficiency skills indicated how important their cultural background is in influencing them to obtain healthy food in Tasmania.

## **4.9 Conclusion**

This chapter has presented the results of the quantitative analysis of the data obtained from the questionnaire. Both descriptive and inferential analyses were used to address the respondents' experiences and views on food security in Tasmania. The demographic characteristics of respondents including gender, region of origin, English language proficiency level, marriage status, length of stay in Tasmania and educational level were considered. Significant factors associated with the respondents' experiences, views and attitudes on food security were also identified. The next chapter will highlight the qualitative data which includes an analysis of the answers to the open-ended section of the questionnaire, as well as the data obtained from the semi-structured interviews with the respondents. It will provide insights into the experiences of food security among migrants by presenting the themes, categories and issues that emerged from the interviews.

# Chapter 5: Qualitative Data Analysis

## 5.1 Introduction

This chapter presents the results of the analysis of the qualitative data collected from 33 migrants through interviews and the written responses from the questionnaire respondents. The data from the interviews addresses each of the research objectives of the study with the aim of examining the food and related health condition of migrants in Tasmania. Specifically, migrants were asked about their experiences on food security in Tasmania including the availability of food, the accessibility of food and any strategies that they used to cope with any food security challenges and any supports that they received to improve their food security. The written responses from the questionnaire respondents provided insights for research objective five, which helps to enhance the health and knowledge of migrants regarding food security. In order to address the purposes of the study, the data is presented under five emerging themes, namely:

- Perceptions and attitudes towards food security;
- Experiences with food security in Tasmania;
- Factors that influence the food security of migrants in Tasmania;
- Acculturation strategies; and
- Suggestions and recommendations to improve food security in Tasmania.

The characteristics of the interviewees are presented and then each emerging theme is examined and any sub-themes and further details presented.

## 5.2 Data collection and analysis

Chapter 3 discussed the details of the data collection and analysis for this study. Data was collected using semi-structured interviews with 33 migrants (interviewees). In addition, there were 150 written comments gathered from 301 questionnaire respondents (respondents).

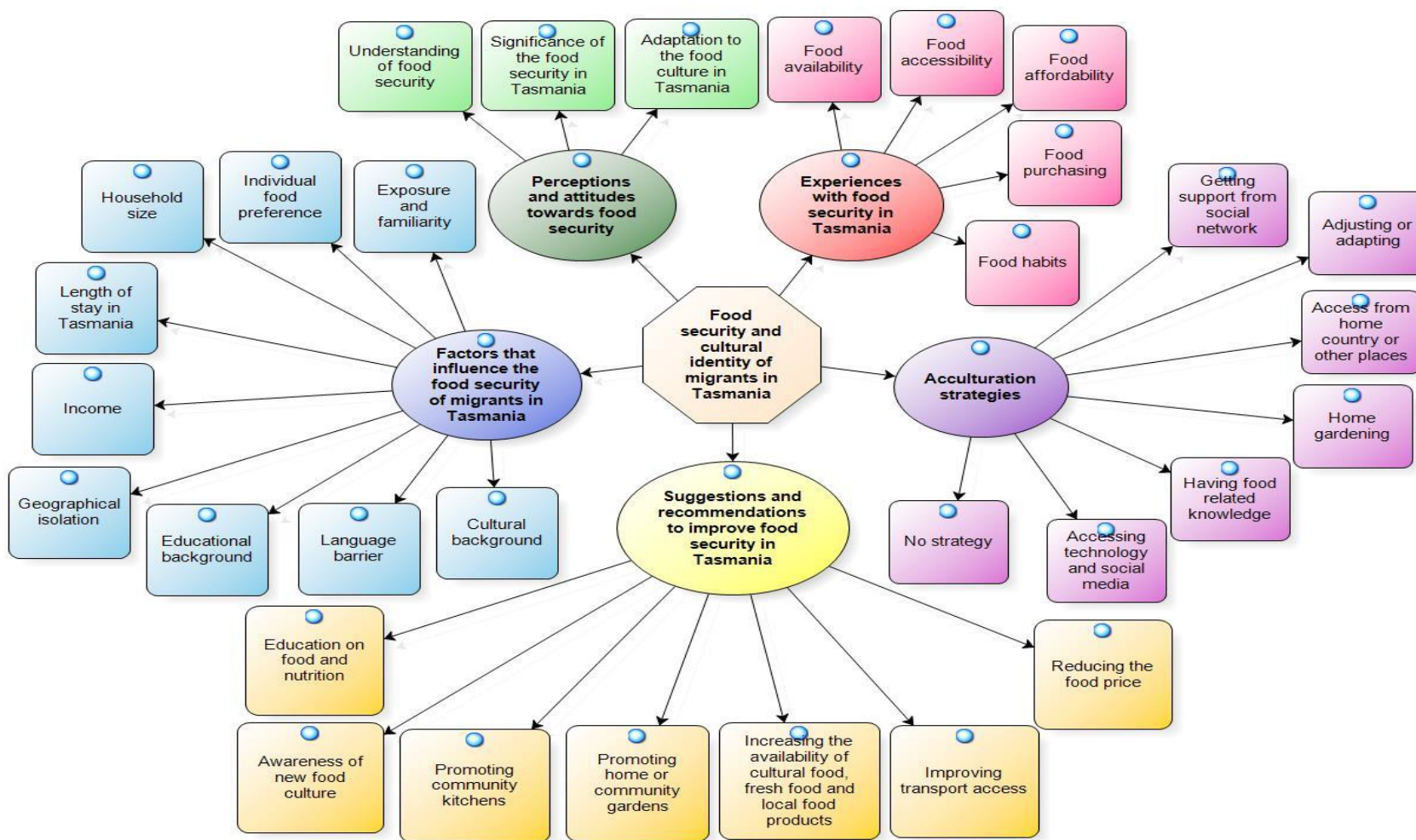
Quantitative data analysis focuses on the numerical data and the relationship between various variables to make generalisations, whereas qualitative data analysis provides different insights and meanings into personal experiences and phenomena. Basically, *quantitative* is about number and *qualitative* is about meaning. Nevertheless, they are not mutually exclusive and support each other to provide different insights, which can be treated as evidence to support the aim and objectives of this study.

Thematic analysis was utilised to facilitate the qualitative data analysis. The data collected from the interviews was first transcribed to form the raw data recording what the interviewees had said. There were linguistic errors in the transcripts, and further clarification was sought from the interviewees as a process of meaning-making and meaning-sharing during the interview. Thus, the texts were marked with fillers such as 'um', 'you see', 'OK' and other repetitions. The raw data showed the authentic social context of interpersonal communication.

Coding was the next step after transcription of the raw data, in order to identify concepts and issues related to this study. NVivo facilitated the coding process, particularly when developing and using different nodes. Some nodes were independent and others were interrelated. Thematic analysis was then used to develop topics, issues and themes from the nodes.

Thematic analysis is, "A method for identifying, analysing, and reporting patterns (themes) within data" (Fereday & Muir-Cochrane, 2006, p. 6). The process of thematic analysis involves the generation of codes; the identification of themes through data reading; line by line coding or word by word coding; data integration; and interpretation (Fereday & Muir-Cochrane, 2006; Robson, 2011; Thomas & Harden, 2008). According to Braun and Clarke's (2006) guide to conducting thematic analysis, there are six phases in the thematic analysis process. The process starts with familiarisation of the data; the generation of initial codes; a searching for themes; then a review of themes; the definition and naming of themes; and finally, the production of report. Figure 5.1 (overleaf) shows the thematic structure of the qualitative findings and provides a visual presentation of the themes, sub-themes

and their interconnectedness which were formed through the qualitative analysis (see also Appendix 10).



**Figure 5.1: Thematic structure of qualitative findings**



### 5.3 Key characteristics of the interviewees

33 migrants participated in the semi-structured interviews. The demographic backgrounds of the interviewees such as region of origin, length of stay in Tasmania, place of stay in Tasmania, level of highest education and language spoken at home were obtained during the interviews. The key characteristics of the interviewees are illustrated in Table 5.1 below.

**Table 5.1: Key characteristics of the 33 interviewees (N=33)**

Characteristics	Number (n)	Percentage (%)
<b>Regions of origin</b>		
- Asia	30	90.9
- Others	3	9.1
<b>Length of stay in Tasmania</b>		
- Less than 1 year	8	24.2
- 1 to 2 years	3	9.1
- Over 2 to 3 years	8	24.2
- Over 3 years	14	42.5
<b>Place of stay in Tasmania</b>		
- Hobart	6	18.2
- Launceston	23	69.7
- Burnie	3	9.1
- East Coast	1	3.0
<b>Level of highest education</b>		
- University	25	75.8
- Secondary	6	18.2
- Other	2	6.0
<b>Language spoken at home</b>		
- English	10	30.3
- Other	23	69.7

The majority (90.9%) of the interviewees were from Asia. 42.5% had lived in Tasmania for more than three years. Almost 70% of the interviewees were living in Launceston and 75.8% had a university degree. Only 30.3% stated that they spoke English at home while nearly 70% spoke other languages including Mandarin, Nepali, Cantonese, Vietnamese, Hindi, Bahasa Indonesia and Korean.

## 5.4 Perceptions and attitudes towards food security

The qualitative data analysis provides a clear understanding of the complexity of the perceptions and attitudes that migrants living in Tasmania have towards food security, these are outlined in Table 5.2.

**Table 5.2: Theme 1 – Perceptions and attitudes towards food security**

Theme 1: Perceptions and attitudes towards food security
<b>Subtheme 1: Understanding of food security</b> <ul style="list-style-type: none"><li>• Food availability</li><li>• Food quality</li><li>• Food accessibility</li><li>• Food affordability</li></ul>
<b>Subtheme 2: Significance of food security in Tasmania</b>
<b>Subtheme 3: Adaptation to the food culture in Tasmania</b> <ul style="list-style-type: none"><li>• Attitudes to food adaptation</li><li>• Differences in food culture</li><li>• Reasons for food adaptation</li></ul>

### 5.4.1 Understanding of food security

The interviewees' understanding of food security included a number of topics including food availability, quality, accessibility and affordability. The responses are outlined in greater detail below.

#### 5.4.1.1 Food availability

Food availability is the most essential requirement for food security. One migrant's perspective was, 'Food security is having enough food for someone or individual, especially migrants in Tasmania' (M24). Food must be easy to obtain from 'shops or grocery, plenty of good food, great food available' (M4). Furthermore, it is essential from the health perspective that, 'Food is enough, or the source of food is enough for me to reach' (M22).

Moreover, the interviewees also indicated that they would not have to worry about food consumption if they were food secure.

*My understanding about food security is you no worry about food. Every day you eat healthy or unhealthy food. Like, every day you eat enough*

*vegetables, meats, or fast food. That is what I understand about food security. (M1)*

When migrants move to a new place, it is common for them to experience a number of differences in food culture. Having familiar food is critical for the food security of migrants. One migrant stated, 'For me, the food I [am] used to, the stuffs that my body [is] used to, food that I used to eat and that is food security' (M12). Furthermore, cultural foods are also important for migrants to maintain a healthy and active life. Thus, migrants feel food secure when they have familiar food in a new environment.

Another concern is having proper food for family members. Other than having enough food to eat, M6 expressed that, 'Basically, my family must have proper food, and also healthy choices of food. It is very important. I will feel secure if my family eat well. So, simply, proper food is food security for me.'

#### **5.4.1.2 Food quality**

Beyond food availability, food quality was viewed as one of the vital aspects of food security. The interviewees indicated that safe food was an essential element to being food secure. The food sources must be made known to consumers and free from pollution. 'In my understanding, food security is food that is safe to eat. Like, vegetables you bought from the supermarket must [be] free from pollution and safe to eat' (M2).

The interviewees also made the link between safe food and adequate food processing. The food must undergo proper food processing which follows the rules and regulations set by the government. One migrant indicated that,

*If the food [is] not process in the proper regulations, it will goes wrong and germs will go inside. So it will affect people's health. I think it got to be in the right temperature. If the food is safe, it must be cooked in the right temperature, keep in the right temperature. (M29)*

The standard of hygiene of restaurants was also viewed as important, and that food produced in restaurants was safe to consume.

Food security was related to healthy and nutritious food. From the interviewees' perspective a healthy, nutritious and balanced diet that was the main foundation for a healthy body was the outcome of adequate food security. One migrant commented, 'Food security is more concern on health and having healthy and balanced diet', (M28).

The freshness of food was also treated as an important aspect of food security. One respondent (M4) said that, 'The food must be fresh', in order to qualify as food that will result in food security.

#### **5.4.1.3 Food accessibility**

Food accessibility is another aspect of food security: 'Access to food [at] all time... ability to access to nutritious and safe food' (M9). Migrants should have access to food all time to avoid hunger. In order to achieve food security, migrants need to have, 'access to food products to maintain health in daily life' (M28).

#### **5.4.1.4 Food affordability**

Lastly, food affordability also plays an important role in food security. An interviewee (M28) commented that affordability was the main issue in achieving food security. Another stated, 'Reasonable price is important to make sure we afford to buy food' (M8). Everyone can buy food when the food is affordable. In this sense, there was enough accessible food for migrants in Tasmania, but when the prices are too high, some migrants are unable to, or lose the power to, buy food and food security is not achievable.

Overall, from the migrants' perspective, food security was closely related to the availability, quality, accessibility and affordability of food. The interviewees believed that, in order to achieve adequate food security, there must be available food including cultural food that was safe, nutritious and easy to access at a reasonable price.

#### 5.4.2 Significance of the food security in Tasmania

The interviewees revealed their thoughts about the importance of food security in Tasmania. Most agreed that Tasmania has good food security including good food quality and food preparation; 'I am satisfied with the food security in Tasmania. The food like vegetables, fruit and meat are fresh. I [feel] secure with food in Tasmania' (M17). The migrants generally responded positively to food security in Tasmania. They were not worried about the food and knew that it is safe to eat all food that is available in the state. They also indicated that the food security in Tasmania was much better than their home country. For example,

*The food security here is good compared my home country... In India, they pay more attention to the water, not on food. So many people do not dare to try outside food. (M11)*

This satisfaction was also shared by another respondent:

*On the other hand, there is a good thing that I found here is the vegetables here are much more natural. You even no need to wash them before eating. However, you cannot do that in China. If you do not wash your vegetables, you may get sick because of the pesticides attached on the leaves. So, you must wash them in the proper way, but you do not need to do this here [Tasmania]. (M15)*

The food quality in Tasmania was recognised as good, fresh, natural and not polluted. However, the respondents indicated that there were still some issues and challenges regarding food in Tasmania. For instance, one respondent avoided buying green leafy vegetables as a friend accidentally found worms in their food green leafy vegetables.

Overall, the migrants in the study were satisfied with the food environment and the condition of food in Tasmania. They found the food security in Tasmania was good and the fresh food was natural and unpolluted; although some found that there were still some minor difficulties with food in Tasmania.

### **5.4.3 Adaptation to the food culture in Tasmania**

In addition to the understanding and significance of food security to migrants, the attitudes of migrants adapting to the food culture in Tasmania were extracted from the data, and their views on the differences in the food culture and the reasons for adaptation. This section presents the findings regarding the attitudes of migrants in relation to the adaptation to the food culture in Tasmania.

#### **5.4.3.1 Attitudes to food adaptation**

During the interviews, the migrants expressed their views about adapting to the food culture in Tasmania. Most interviewees adapted to the new food culture easily. One respondent stated, 'No. I do not have difficulty in adapting to the food culture here' (M11), and another agreed, 'No, I do not have problems at all' (M16). They did not meet any problems in adapting to the food culture and were flexible and adaptable to the new food culture. 'What we ate in India, we get everything here' (M23). This interviewee stated they did not face any problems in relation to the food culture.

However, some interviewees felt that it was difficult to adapt to the food culture in Tasmania, particularly during the early stages of migration. They 'miss[ed] food back home' (M6). After a period of time, they learnt to adapt and became used to the food culture in Tasmania.

*In the beginning, it was difficult to change, but as time goes by... I learn to adapt to a different kind of food available in Tasmania. (M3)*

Even though most interviewees adapted to the food culture, some were unfamiliar with particular foods available in Tasmania. This was a challenge for them to acculturate to the food culture in Tasmania.

*There are some foods that I am not used to, for example, the dairy products, cheese. Another thing is a particular kind of sweets commonly put on the cake. It tastes weird to me. I do not like it. Furthermore, the desserts here are too sweet. (M26)*

#### 5.4.3.2 Differences in food culture

In addition to food adaptation, there was a significant difference in food culture in terms of the food preparation and food types available. Traditional Australian methods of food preparation (such as are found in Tasmania) are more European-style using baking or roasting. While in Asia, such as the Philippines, '[We] normally have steamed fried vegetables with rice. However, here [Tasmania], we often have baked vegetables with steak or steam vegetables with whatever meat we can have' (M3). Similarly, Chinese cooking styles involve a lot of stir fry. Differences in cooking styles between Australia and other Western countries were identified by some interviewees. One interviewee from the United States, 'found out there is much fried food... Even you have the roast meal. It was cooked like oil... Much fried food [that] surprise me' (M18). This is despite both Australia and America sharing commonalities in other aspects of their cultures.

Other than the differences in food preparation methods, the types of food eaten in Tasmania were also different. The staple food types eaten in Tasmania are mainly Western staples including bread, potatoes and dairy products. As 91% of the interviewees were from Asia and they therefore had rice as a staple food for most meals. For example, migrants from China, the Philippines and Korea usually consumed rice with vegetables or meat.

*I would say we eat more veggies in China. We stir fry the veggies and eat with rice. However, here they frequently have potatoes or pumpkins, no much rice. So that is the difference. We used to eating rice in our culture. (M2)*

*In Korea, rice is the main food for each meal, including breakfast, lunch and dinner. There are many side dishes including soup with rice in each meal. This is Korean way of eating. (M28)*

Other differences were remarked on: M23 who was from India noted the use of different spices in cooking and observed that the use of spices in India was quite the opposite from Australia.

#### 5.4.3.3 Reasons for food adaptation

Reasons for food adaptation were identified and the interviewees claimed that personal reasons made it easier for them to adapt to the new food culture. For example, they felt excited to taste and use food that they never tried before. M6 indicated, 'When I was first got here, I was excited to eat steak.' It was always a good experience to try and test new foods.

The experiences of exposure to different varieties of foods and experiencing new foods helped the migrants to adapt to the host country's food culture. It seems that once the migrants received greater exposure to another culture, they became better-adapted to the new culture.

*Because I have been exposed to a different kind of food, so it is not difficult to adapt. Just have to enjoy it. (M24)*

In order to have a healthier lifestyle, the migrants adapted to Australian way of eating because they viewed the Australian eating style as a healthier alternative. A migrant who originated from Malaysia, used to have many oily foods and adapted to the Australian food culture by having Australian meals such as 'Breakfast, no more spicy food, only toast bread and oats. Lunch, I eat fruit. Moreover, dinner, I have potatoes' (M20). By following the Australian healthy way of eating, she made herself fitter, healthier and also lost some weight.

Another concern was food preparation time. Some cultural foods took longer time to prepare than Australian food. One migrant from Korea changed her eating habits from Korean food to Australian food because Korean food preparation consumed too much time. She decided to give up making Korean food,

*I adjusted my food habits with Australia's food culture. I prefer simple meal with less complicated food preparation. The fewer food ingredients will make a meal healthier. So, the reasons I abandon Korean food is it is time consuming to prepare. It needs much time to prepare. (M28)*



Some migrants indicated that having children was likely to motivate them to adapt to the new food culture. Children impacted adult eating habits as adults usually followed their children’s eating habits. A respondent who had two children said,

*Because I have kids, so it is a bit easier for me... Because he likes the western food, so [I] have to cook western food for him. So it makes me easier to adapt to the food culture... If I cook some Chinese food, he will not happy. It is OK for me. If you do not have children, you will not care so much. (M33)*

In contrast, older migrants still preferred traditional food. They tended to retain their traditional food uses and eating habits. It was more challenging for them to adapt to the Western food culture. A migrant commented, ‘Our parents and grandparents do not eat some Australian food like noodle and meat here. They prefer traditional food’ (M25).

In summary, the interviewees have adapted well to the mainstream food culture in Tasmania although most of them experienced difficulties in the early stages of settlement in Tasmania. The interviewees were satisfied with the food in Tasmania; though there were big differences between the food culture in Tasmania and their home countries, especially for those from Asian countries. Some found that the different types of food preparation were a challenge when adapting to the new food culture. Nevertheless, their attitudes to trying new food, their experiences of being exposed to different kinds of food, and their various life stages (i.e., having children, elderly) affected the process of adapting to the new food culture.

## 5.5 Experiences with food security in Tasmania

This section presents the findings on the experiences of migrants in relation to food security in Tasmania and is outlined in Table 5.3.

**Table 5.3: Theme 2 – Experiences with food security in Tasmania**

Theme 2: Experiences with food security in Tasmania	
Subtheme 1: Food availability	
•	More cultural food available
•	Lack of cultural food choice
•	Geographical disadvantage

Theme 2: Experiences with food security in Tasmania
<b>Subtheme 2: Food accessibility</b> <ul style="list-style-type: none"> <li>• Mode of transport</li> <li>• Place to buy food</li> </ul>
<b>Subtheme 3: Food affordability</b> <ul style="list-style-type: none"> <li>• Comparison of food price</li> <li>• Expensive cultural food products</li> <li>• Food price is not a concern</li> <li>• Food budget</li> <li>• Reasons for the high food price</li> </ul>
<b>Subtheme 4: Food purchasing</b> <ul style="list-style-type: none"> <li>• Food quality</li> <li>• Food price</li> <li>• Expiry date</li> </ul>
<b>Subtheme 5: Food habits</b>

### 5.5.1 Food availability

The interviewees shared their experiences of food security in relation to the availability of food ingredients and cultural foods. There were many different experiences and perceptions of food availability in Tasmania. Most interviewees said that the food ingredients available in Tasmania were sufficient to fulfil their needs and there was a good enough food supply from supermarkets and cultural shops.

*Well, we get everything here, that is what I say. I did not have any problem...*

*We get everything here so far. We have not had any problem. (M23)*

However, there was still a lack of certain food ingredients in Tasmania and some felt that the variety of food choices was limited. Some stated that the food choices in the supermarkets and food shops in Tasmania were limited, particularly for vegetables, whereas in their home countries they could buy a greater variety of vegetables and meat, 'I can buy veggies from the supermarket, but there are not many options, especially Asian veggies' (M2). As well as a limited range of fresh vegetables, it was also noted that there was a limited range of frozen vegetables available when compared to frozen chips or pies, where there was an extensive range.

*When I go to the grocery store... There is a whole section of chips, frozen chips, and you got a little section of frozen vegetables. Moreover, that is bizarre for me. Moreover, pies... I think that things that fried, the chips, fish, there is no such things like steamed fish. It is all crumbled by batter. That is such steamed fish or vegetables do not seem like anywhere. You have specially to request. Everything is fried here. It is weird. (M18)*

#### **5.5.1.1 More cultural food available**

In terms of cultural foods, the interviewees felt that there were more cultural foods available in Tasmania than previously, 'Because there is a new grocery shop opened in town [Launceston]' (M7). Different types of cultural food such as dried fish were now available, as stated by M24, 'And in the Philippines, we also love dried fish and now we can buy it from Asian shop. It is now available here. That is really good.'

*...we have much more choices in term of types of food. For example, the time I first came here, there wasn't any Indian or African grocery before, not many Asian grocery shops. (M9)*

This view was supported by another respondent who had been here for many years, and who had noticed a big increase in food choices in Tasmania. The increase in food choices has made the food tastier too.

*Today, there is a versatile food range you can get in Australia, from all the countries. However, when I came 50 years ago, there was not much food we can buy from shops. People cook very simply... Very simple meal they have. Now, people have chances to get more variety of Asian foods, European food like Italian food and Hungarian food. So, nowadays there are more foods in Australia and even spices are introduced into Australia. It makes food tastier than once was. (M21)*

#### **5.5.1.2 Lack of cultural food choice**

Although more cultural food was reported to be available in both supermarkets and cultural food shops, the choice remained an issue for some. It was still a challenge for some migrants to find certain cultural foods. For instance, those who loved spicy

food found that there was a limited range of chillies available. One stated, 'Yes, [I] like chilli. [But there is] not much chilli available although still can found... I bought [chilli] from Coles [major supermarket], but not many choices' (M11). Another respondent who had the same preference for spicy food also experienced the same issue where she, 'still can get spicy Asian food in Coles or Woolworths, not in a variety, but you still can get' (M20).

### **5.5.1.3 Geographical disadvantage**

When compared to other parts in Australia, Tasmania was seen to be disadvantaged and limited in terms of food choice. There were certain foods that could not be found in Tasmania and yet are available on big cities in mainland Australia. The respondents indicated there was a lack of certain Asian food products, for instance, 'yam. It [is] a kind of Chinese herbs. My friend can find it in Melbourne, but I cannot find it in Burnie' (M2). More Chinese or Korean food ingredients were available in big cities (Sydney, Melbourne or Perth) due to the greater number of Asian grocery shops which offered more options.

*There is a limitation in food choice certainly. I used to live in Sydney, and I think it is lots more easily to get Chinese food and ingredients from the grocery there but in Tasmania just don't have many choices. (M7)*

*There are three main Korean areas where many types of Korean grocery shops located in Sydney. There is variety of choices can be found in different shops. You can go to either one of them when you cannot find things you need... In Launceston, Tasmania, there is a lack of Korean grocery shops. (M28)*

There were particular food ingredients that were unable to be found in Tasmania. Most of these were not imported into or grown in Tasmania, 'For example, I crave for typical Chinese northern food. I will not be able to find the food ingredients to prepare... There's one thing in northern China that I never find it here is bean curd sheet. I never find it here' (M9). Through the interview data, the interviewees also commented on the absence of certain fresh foods which they craved after.

*...there is a peach in South Africa, yellow peach. I would love to have yellow peach. I do not get it in Australia. Not available here. So I cannot eat my yellow peach, and that is my favourite peach. I do not like other peaches, but I do like that peach. (M12)*

*Some of the melons, we called winter melon; they grow it in Perth, but you cannot see any in Tasmania. They are healthy food. We are sort of looking for those things, but I just don't have a chance to have it. (M29)*

There were more cultural food shops available in the large Australian cities such as Melbourne and Sydney. These cultural food shops import a larger range of foods from more countries; these were however not found in Tasmania. For example, American and Nepali food shops are available on mainland Australia but not in Tasmania.

*Another store like, there is a place in Melbourne called USA food. They import many items from the United States. All of the stuff: cereal, lollies and Mexican food, that is something I miss a lot. However, I cannot get the ingredients to make it, so I did not make it anymore. (M18)*

*...I find Nepali food in Sydney, Melbourne and Adelaide. There is a Nepali shop located in mainland that imports much food from Nepal. However, I cannot find in Tasmania... For example, noodle we eat in the past. Spices, some spices we eat not available in Australia. Rice, the different types of rice we eat. We cannot find in Tasmania. (M25)*

Within Tasmania, there were also differences in term of food availability. Some places such as Hobart and Launceston have greater food options than other more regional places in Tasmania. A Vietnamese migrant living in Burnie highlighted this fact. She found it was difficult to find the food ingredients to make Vietnamese food because there was only one shop in Burnie that sold Asian products, thus reducing her variety of food options.

*Sometimes, I want to cook Vietnamese food, but I cannot find the ingredients, like herbs, in [major supermarkets] Coles and Woolworths... Like, some food ingredients for Vietnamese food, for example, herbs and Vietnamese spring roll wrapper. (M1)*

Meanwhile, the interviewees suggested that the size of the migrant population in Tasmania was possibly one of the reasons for the lack of cultural food ingredients. The low numbers of migrants from culturally different backgrounds in Tasmania may have an effect on the availability of cultural food choices due to the lower demand for cultural food. For example, one migrant who had previously lived in Perth (Western Australia) found that more Chinese foods were available there compared to Tasmania, 'In Perth, because of the population of Chinese, so we have more choices. However, here [Tasmania] we have not much choice' (M13). Furthermore, another migrant living in Burnie also faced the problem of a shortage of Asian food choices.

*In Burnie, there are not many Asian people, so not much Asian food to choose. (M1)*

To summarise, the food available in Tasmania was believed by the migrants to fulfil their needs to some extent. The migrants however found that there was a limited choice or lack of cultural food available in Tasmania. Nevertheless, particular cultural foods were still available in the other big cities of Australia such as Melbourne or Sydney. The distribution of cultural food varied across Tasmania. For instance, some particular foods could not be found outside of the major centres of Hobart and Launceston. This appears to be due to the small population of migrants living outside of Hobart and Launceston.

### **5.5.2 Food accessibility**

The interviewees also shared their experiences of food accessibility in Tasmania. The majority of the respondents stated that the food they needed was accessible and convenient for them buy. In most cases, it was only a short distance between where the migrants were living and the shops that they visited, 'Live near to the

town. It just needs five minutes of walk' (M2). In some cases, respondents had made a conscious decision to live within walking distance of the shops in order to have easy access.

*Woolworths is across the road... Easy for me to access from where I am living. If I were living further out, it would not be. Moreover, that is why we made a decision because both of us in South Africa live far away from shops... We want to be closer, accessible to shops. So that we could access to shops easily, even though my car broke down, I still can get to shops just walk. (M12)*

#### **5.5.2.1 Mode of transport**

In terms of transport, the migrants usually walked or drove to buy food depending on the location of the food shops. They walked to buy food if the shops were nearby and used cars when there was a need to go further or they had to do a large shop, 'Sometimes we do drive to another shop that is about 5km from my house to get certain food' (M1). 'If there is big shopping, I will use my car' (M4). Overall, none of the respondents had a transport problem when accessing food.

Some migrants felt it was not cost effective to travel great distances to buy the food they needed. For instance, M12 indicated that she would not go further than 10km to buy a particular food product, although the only store that sold the product was more than 10km away. Long trips were viewed as not being cost effective, so an alternative was to purchase at nearer shops despite the higher cost.

*Although the food is a bit expensive compare other place, I will not purposely travel far to buy a bottle of soy sauce. Like, here I can get a bottle of soy sauce for about \$3. It is cheaper when you buy it from the city. Anyhow, I still prefer to buy food from the supermarket nearby although it is a bit expensive, rather than spend hours of car journey to travel further to get cheaper food. (M15)*

### **5.5.2.2 Place to buy food**

The supermarket was the most common place that the interviewees shopped at for food. Interviewees also bought fresh vegetables and fruit at local food stores such as greengrocers, which were often cheaper than the supermarkets. Cultural food stores were also used, particularly for certain cultural food products that were not available in the supermarkets. This was highlighted when an interviewee stated, 'I have to buy [some things] from the Asian shop because they are not available in supermarket' (M23).

*I did not buy fresh ingredients from the supermarket. I always buy them in local greengrocer. Since we have a local store in Mowbray five years ago, I hadn't bought any fresh food in the supermarket... They are much cheaper... The apple is \$5 a bag, but in local green grocer, it only cost \$3.50. So there's a lot of differences buying from supermarket compare to the local green grocer. (M6)*

In general, the interview data analysis showed that the migrants shared similar experiences when accessing food in relation to the location of the food shops, the transport they used to travel to the shops and the choices they had about where to go to buy food. Many migrants particularly reported that they would buy food from shops nearby due to the ease of access and shorter walking distance involved. They travelled by car if the shops were further away or if they wished to undertake a considerable amount of shopping. The three most common places where migrants went to buy food were: supermarkets, local food stores and cultural food stores.

### **5.5.3 Food affordability**

#### **5.5.3.1 Comparison of food price**

Food affordability plays an important role in achieving food security. Through the semi-structured interviews in this study, the interviewees reported their experiences regarding food affordability in terms of food prices in Tasmania. The increase in the price of food affected the food purchasing power of the migrants. A comparison was made by the interviewees between the food price in Tasmania and mainland Australia. They indicated that the food, 'prices are more expensive



[higher] than in the mainland [i.e., Melbourne]' (M8). The interviewees also noted that the food prices were higher in Australia when compared to other countries.

*A lot that have to do is with the cost of the food. Like, for example, a chicken, it is really cheap over there [The United States]. Moreover, it is not as cheap here as over there... Even mince, the meat is expensive. So, yeah... Meat is expensive. (M18)*

#### **5.5.3.1.1 Expensive cultural food products**

As well as the high prices of vegetables and fruit, the interviewees agreed that the cultural food products in Tasmania were also expensive. When they compared the price of cultural food in Tasmania with that of mainland Australia, they discovered that the prices in Tasmania were much higher.

*I think the Asian foods are very expensive compared to Sydney and Melbourne... Many big supermarkets in Sydney and Melbourne are selling cheaper stuff. I can give you an example. Such as "lao gan ma", a kind of chilli paste, you know, here you buy one for \$4, but in Brisbane and Sydney is only \$2, or nearly \$2. The price here is nearly twice. (M33)*

#### **5.5.3.1.2 Food price is not a concern**

On the other hand, the price of food was not a big concern for some migrants; they managed to buy the food they needed. M17 indicated that, 'The food price is not a matter for me. I still afford to buy things I need and want' (M17). They were willing to pay for their preferred food, 'No matter how expensive it is if I like it, I will pay to get it' (M22). Another migrant stated, 'I always go shopping with my mother-in-law. It is like we buying food, she pays for it. So we do not worry about the cost, as long as we afford to pay for it. If it is an expensive vegetable, if we want it, she does not mind paying for it' (M24).

#### **5.5.3.2 Food budget**

Budgeting for food was considered necessary by the migrants. Due to the high food prices, the interviewees felt that a well-planned food budget was required to control expenses and food shopping had to be planned carefully. For example, some interviewees compared the cost of ingredients before purchasing them and

discovered where it was cheaper to buy certain fruit and vegetables. One migrant described her experience as follows: 'The apple is \$5 a bag, but in local green grocer, it just cost \$3.50. So there's many differences buying from supermarket compare to the local green grocer' (M6). On the other hand, the interviewees indicated that when the food price went up they reduced the amount of food they purchased to keep within their food budget.

*...the price of tomatoes was \$2 a bag of tomatoes. You eat tomatoes as if you want, and whereas if you go today, the price of tomatoes is \$6. So, you buy fewer tomatoes and veggies because the price is a lot more. Moreover, that already in the budget that you plan for, you got to control much stuff in the budget you have. (M12)*

The situation was more challenging for migrants who had a low income or were unemployed, as they normally depended on welfare from the government to support their living expenses. Without money, it was difficult to purchase highly priced food or the food that they preferred. In these cases, the migrants had to act wisely in planning their food budget.

*I do think the food price in Tasmania is quite high for people like us because we are relying on the Centrelink payment, we are not working and we have no money. So it is really high for us. (M4)*

### **5.5.3.3 Reasons for the high food price**

Through the interview data, two factors were identified that influenced the cost of food in Tasmania: transport costs and the seasonal factor. Tasmania does grow and produce some of its own food but a lot is imported into the state by ship across Bass Strait and by air. The cost of this importation is relatively high as Tasmania is an island and this adds to the cost of food.

*Tasmania is a small island, so normally the food price here is higher compare mainland, Melbourne or Sydney, due to the transport fees. So this is the essential point. (M26)*

The second factor identified was the seasonal factor: food prices in Tasmania, particularly for fresh fruit and vegetables, fluctuate depending on the season. This fluctuation affected the buying patterns of the interviewees and what fresh fruit and vegetables they consumed.

*Particularly in the off season, like, for example, the winter time we have winter time fruits and vegetables available. Summer we have summer fruits and vegetables. However, there is off season where everything will be expensive. We can see clearly that fruits and vegetables drop [the price] for about six weeks then it comes up. (M18)*

Food price also varied depending on the location of the food shop. In the city, food prices were lower than in smaller rural or regional areas. Two respondents from St. Helens and Clarence Point, 160km and 55km from the nearest city respectively, indicated that the food prices in their areas were much higher than in cities such as Hobart and Launceston.

*For example, a chicken drumstick sold here is \$5 per kg, but in Hobart, it just costs \$4 per kg, much cheaper... You can save a lot if you buy them from city compared to here... Today I bought cucumber, here \$1.50 per one, but in Hobart only \$1. (M15)*

To summarise, the interviewees perceived that in general the food prices in Tasmania were higher than other places in Australia, particularly the larger mainland cities. However, some migrants did not feel that food price was an issue to be too concerned with. High food prices were a burden for the migrants who were on low incomes or who were unemployed. In these cases, they needed to plan their food budget well. Fresh fruit and vegetables were rated as foods that fell into the high price bracket, with the high prices caused by transport costs and seasonal variation in supply. Particularly, Asian food products were felt to be highly priced due to the transport cost and lack of competition in Tasmania.

#### **5.5.4 Food purchasing**

Food purchasing can have a great impact on food security. In this study, some aspects of food purchasing, such as food quality and food price were explored through the interviews. The interviewees focused on food quality, specifically the nutritional value of the food.

##### **5.5.4.1 Food quality**

When commenting on food purchasing, many interviewees indicated that they paid attention to the quality of the food, particularly its nutritional content, when buying food. It was common for them to examine the nutritional content of food before purchasing to ensure that it met their health needs. One interviewee stated, 'Because I have high cholesterol, so I need to control. For example, when I am buying milk and butter, I need to make sure it is skim milk and no fat' (M17).

*Another fact is nutrition... For example, I will look at the food content, like less sugar or sweetener. I will take note on it because I do think that sweet is not healthy... For example, my daughter wants to drink Yakult... Different brands have different ingredients in it. I take notice on that. Even though home brand is cheaper, but I still prefer the popular brand where most people buy because of the nutrition. So, I will look into nutrition facts when buy food. (M6)*

Other than the nutritional content, the interviewees selected fruit and vegetables that looked fresh and healthy, 'It should be fresh... like vegetables, make sure it is not like brown' (M5). The interviewees still preferred to buy fresh food even though the price might be higher. One respondent remarked,

*I found that in the supermarket, meat, pork or lamb if they are not so fresh, they will in low price. Compare to the low price and the standard price, due to the freshness, I still choose the fresh one. Freshness is more important. (M33)*

#### **5.5.4.2 Food price**

As mentioned in section 5.5.3, food price was one of the issues faced by the migrants and was an identified concern when choosing food. The price of food is more of a burden for low-income earners and large households, particularly if they want to buy the often more expensive healthy food. To this end, the migrants needed to plan well to meet the food expenses.

*I will look at price. I do think the food price in Tasmania is quite high for people like us because we are relying on the Centrelink payment, we are not working and we have no money. So it is high for us. (M4)*

*I think of our situation is we having four kids. The biggest thing is the cost. We have limited the budget, and we have to be very careful not to go over the budget because we both don't have anything for our background. So, cost probably is the biggest thing. (M18)*

#### **5.5.4.3 Expiry date**

From the health and safety perspectives it is important to check the expiry date of food to make sure that the food is still in good condition. The expiry date refers to the last day the product should be used to ensure the best quality. The interviewees checked the expiry date of food before they bought it, 'I think the most important thing is the expiry date. As long as the date is not expired, I will buy it. Here, almost every food has an expiry date' (M26).

Overall, food quality was viewed as the most important aspect when purchasing food. Despite the importance of food quality, it was noticeable that the interviewees were also concerned about the food price and expiry date.

#### **5.5.5 Food habits**

The food and eating habits of the interviewees played a role in their food security. For the purposes of this study *food habits* refers to the type of food eaten by the migrants in Tasmania. It was found that many interviewees preferred homemade food, 'I usually eat at home, no eat outside. My wife cooks for family and me. It is

our tradition to eat at home' (M25). It was not usual for them to have meals in restaurants or to eat takeaway food.

*...we try to eat at home all the time. So, we cook our own food, so we try to get all the ingredients, grinding our own spices, and we cook at home. So, it is rare for us to eat at outside. (M27)*

There were reasons for not eating takeaway food or food from restaurants. From the point of view of the migrants, homemade food was simple and healthier than takeaway food. An interviewee from Indonesia indicated, 'Most of the time, I cook Indonesian food... It is much healthier and simpler' (M5). Most of the interviewees felt that it was better to make their own food at home, 'If you prefer healthy food; you have to prepare by yourself most of the time' (M30).

The other reason for eating homemade food was the difference in the taste of the food. In Australia many of the cultural foods are significantly altered to suit the Australian palate and the migrants felt that the cultural foods served in restaurants did not taste authentic. For example, regarding Thai food, 'It tastes different. It doesn't taste like the Thai food that I used to eat. It [is] already adjusted to suit Australian taste. So, it tastes sweet, not same with the original' (M5). The food did not taste authentic.

These comments were not limited to cultural food; other food products such as meat and dairy products also tasted different for some of the interviewees. Differences in the taste of food lead some to reduce their diets. The following quotes are from two interviewees from the United States and South Africa and concern their views on the taste of the food in Tasmania.

*I do not like the taste of red meat. It tastes weird to me... Now my husband and I cannot eat steak. We used to eat steak in South Africa. We used to eat sausages. However, we cannot adapt [now] because of the taste. So meat that is a protein, we cut down just because we cannot eat them; we do not like it. (M12)*

*The ice cream tastes different; the milk tastes different; the cheese tastes different. We do not have tasty cheese in States, any such thing... I wonder what tasty cheese was. Is it a brand? (M18)*

Those interviewees who were more flexible and prepared to try different food did eat the different kinds of food available in Tasmania. They were happy to try any food and found trying different food a good experience, 'That is not a problem for me. Whatever also fine to me. I like to try all foods' (M20).

*We normally have a variety of food...like this week we have Filipino food, Mexican food and Italian food. So it is a mixed because I have Australian people in the house... However, it is really good because you can try different food, not only your own cultural food. (M24)*

One interviewee felt strongly that Australian foods made her healthier. In her view, the Australian way of cooking was much better than her traditional way of cooking. She used to have oily and spicy foods in Malaysia, but now she preferred to have light meals.

*Well, I follow the Australian meal. For breakfast, there is no more spicy food, only toasted bread and oat. Lunch, I eat fruits. Moreover, dinner, I have potatoes. The potatoes here are so nice to eat. Well, I have cut off much oily food that was my old habit in Malaysia... My husband likes to eat steam food, so we hardly fry things, oven-baked or grill. We want to keep ourselves fit and healthy. (M20)*

Many interviewees were aware of the necessity to maintain their health by eating a healthy and balanced diet. A balanced diet with healthy food including fruit, vegetables and meat became their basic daily food consumption. As one interviewee stated, 'I eat a balanced diet as possible... I have all the components of the food diet which is the vegetables, meat, fish, egg, potato, and everything' (M21).

To summarise, migrants usually ate homemade food and had a balanced diet in their daily life. It was uncommon for them to have takeaway food. Although most migrants preferred their own cultural food, they found that Australian or other cultural foods were still acceptable.

## 5.6 Factors that influence the food security of migrants in Tasmania

As reported in section 4.7, different factors impacted the experiences, views and attitudes of the migrants towards food security in Tasmania. A number of variables were found to have a significant relationship with the food security of migrants. For example, the length of stay in Tasmania significantly affected the experiences and attitudes of the migrants towards food security. The interview data revealed that the migrants did encounter some barriers to food security. Table 5.4 summarises the factors that identified through the interview data that influenced the food security of migrants.

**Table 5.4: Theme 3 – Factors that influence the food security of migrants in Tasmania**

<b>Theme 3: Factors that influence the food security of migrants in Tasmania</b>
<b>Subtheme 1: Cultural background</b>
<b>Subtheme 2: Language barrier</b>
<b>Subtheme 3: Educational background</b>
<b>Subtheme 4: Geographical isolation</b>
<b>Subtheme 5: Income</b>
<b>Subtheme 6: Length of stay in Tasmania</b>
<b>Subtheme 7: Household size</b>
<b>Subtheme 8: Individual food preference</b>
<b>Subtheme 9: Exposure and familiarity</b>

### 5.6.1 Cultural background

The cultural background of the migrants strongly impacted on their food security in many ways, including their ability to adapt to the new food culture, their food preparation methods, food habits, and food practices. Figure 4.29 showed that 64.4% of the questionnaire respondents viewed cultural background as an *Important* and *Very important* factor for food security. Differences in cultural backgrounds may lead to differences in the way food is handled and may adversely



impact the health of individuals if the food is not handled correctly. For example, a migrant from Indonesia changed the way she handled leftover food. In the past, she used to, 'put the cooked meat from morning to night and didn't put it in the fridge' (M5). She learnt that the food may spoil if it was not handled and stored correctly.

The cultural background of a migrant influences their food habits and behaviours, and these cultural food habits are brought with the migrant when they migrate. Some cultural influences on food consumption have an impact on overall health and may lead to deterioration in health. One interviewee admitted, 'The culture certainly influences how I perceived and consumed food' (M18). Another respondent expressed how their Chinese cultural background impacted their food consumption in Tasmania.

*...many Chinese people, they not care on the sugar and cholesterol level. When you grow up from a cultural background that doesn't care much on those things, you will not care too much. Most Chinese people care more on the flavour... Like my dad, when he first came, he likes the jam made in Tasmania... He can probably finish one jar of jam in three or four days I guess. Moreover, that's a lot. (M7)*

Additionally, different cultures have different cooking styles. Certainly, the migrants noticed a difference between the way that they prepared food and the way the local people prepared food. Many interviewees found that food preparation in Tasmania was different from what they would normally do in their home country. For instance, those from the Philippines were used to frying most food, while the Tasmanians were observed as baking or grilling most food. Since settling in Tasmania, most interviewees had learnt and adapted to the cooking methods in Australia.

*In Philippine, we used to fry the food all the time. However, here, we use broiling, baking more. It is not said that we do not use frying here, but we use better oil like olive oil to fry. It is healthier than the ordinary oil that we used to. (M17)*

When similarities in food culture were noted, those individuals discussed the ease of adapting and fitting well into their new society. This was shown when one interviewee from Hong Kong discussed cultural similarities to Australia.

*Hong Kong is a British colony country. So I already used to a lot of European things.... As for Australia, it is British colony too. So, it is the same. Of course, there are differences in a lot of way. Like food, you would have a lot healthier food you could buy in Hong Kong. That is you might don't have a chance to buy them in Australia because they do not sell it here... Moreover, I am just fit in like that... (M29)*

### **5.6.2 Language barrier**

Language is the core of communication. Language may be a barrier and in some cases a hindrance for migrants who cannot speak or understand the language of the host country. The migrants interviewed indicated that communicating and understanding English was not a problem. They accepted the importance of the ability to speak English in Australia, as Australia is an English speaking country, 'It is very important to know English because people do not understand your language. Sometimes when you do not know English, you have to keep quiet when people talk' (M4). Furthermore, 'English also helps to understand the food label which is written in English' (M4). Without a basic understanding of the English language, migrants may experience, 'Buying the wrong food and ingredients because [I] not equip with English' (M26).

Although the interviewees did not encounter any difficulty in using the language, some of them occasionally found it challenging to understand the Australian accent. For instance, interviewees M16 and M17 discovered, 'The accent is difficult to understand. Although I know English before I came, but the accent is different and difficult to understand' (M17). They had to adapt their English language skills to understand the Australian accent.

Only one interviewee stated that her poor English communication skills restricted her from doing grocery shopping on her own. She relied on her husband to assist with the food shopping.

*I cannot go supermarket and buy food myself. My English is not good. I always accompany with my husband. He is the one who buy them. I will go together with him. Whenever I see vegetables that I want, I will pick them up and put in the shopping basket. (M15)*

### **5.6.3 Educational background**

Educational background has a substantial influence on the food security of migrants in Tasmania. 75.1% of the questionnaire respondents agreed that knowledge of, or skills in, food preparation and handling were important (Figure 4.29). Knowledge about food nutrition that was learnt at school, college or university brought food security benefit to migrants. In addition, migrants with higher education qualifications had more knowledge about good nutrition and diet. For instance, one interviewee from a doctoral family background had been educated about the importance of food and nutrition since she was young. This made her more aware of hygiene and food nutrition no matter where she was living. Two other interviewees had medical backgrounds which gave them a broad knowledge of healthy eating that influenced their behaviour in choosing healthy food. Some migrants felt that they were more prone to food insecurity when, “‘They do not have much knowledge about good food and nutritious food’ (M4).

*Knowledge is very important. I think literacy, when study in college or university, they will learn more about healthy food choices, other than those who do not. Like, I study nursing. In class, my teacher told me not to eat too much white chocolate because it contains high GI and fats. If you want to eat chocolate, choose dark chocolate. (M30)*

*My education background is a medical background. I used to be Chinese doctor. So I have health knowledge. I always give him [husband] some*

*suggestions on what should eat or what should not. Due to my education background, I also give him [husband] some useful tips on food eating. (M31)*

Furthermore, some interviewees had attended food handling courses which introduced them to Tasmanian food and food preparation. One migrant indicated he, 'Learn[t] how to prepare Tasmanian food and different cultural food' (M11). This was achieved only after attending a course on Australia hospitality and food preparation which was offered by Tasmania Technical and Further Education (TAFE).

#### **5.6.4 Geographical isolation**

Geographical isolation was also identified as an important factor that inhibited the food accessibility of migrants. The distance between where a migrant lived and the shop location determined the difficulty which they experienced when accessing food. This inability to access food became worse if no transport was available. Figure 4.29 showed that 71.7% of the questionnaire respondents rated having their own transport as *Important* and *Very important* for their food security. Similarly, over half of the questionnaire respondents felt that it was important to have easily accessible public transport to access food shops. Many of the interviewees found it easy to access food from shops because they, 'Live near to shopping centre [or supermarkets]' (M1). They usually walked to the shops and this only required a maximum of 15 minutes of walking time. Food accessibility was not a problem for most migrants. When the shops were some distance from where they were living, there was a tendency to use a car to go food shopping.

*It is a bit far from my house. I normally drive there. I have a car. (M19)*

#### **5.6.5 Income**

The income and socioeconomic status of a migrant also influences their food security. 'Income is very important' indicated M7, who stated that a lack of money limited their food choices, 'If people have the money to buy food they want, they certainly have more choices' (M7). A lack of money resulting from an unplanned financial emergency was observed to be a disaster in terms of food purchasing power for those on low incomes, as their food budget would be impacted the most.

Those on low incomes have a limited choice when selecting the food they want, particularly if they have a limited food budget. Furthermore, healthy food is expensive compared to other food thus, 'In finding healthy food, money or budget is a matter. You must have enough money in order to get healthy food. It is all about money' (M28).

The migrants who were unemployed or depended on welfare support faced greater challenges when budgeting and purchasing food. Some interviewees experienced this situation, 'We are not working and no money. So it is [food price] high for us' (M4). They had to have a well-planned food budget to feed all the family members. One migrant stated, 'I am adjusting. I cannot buy those expensive one. I have to control because I do not have income now. I depend on the money given by Centrelink. I am still looking for job' (M16). Another respondent who had a part-time job, also reported on the limited expenses for food to feed his family, 'As for me, I have part-time job now, not a full-time one. So, it is enough for me to feed my family temporary. It is enough, but not more, just enough' (M19).

#### **5.6.6 Length of stay in Tasmania**

As reported in section 4.7.1.1.2, the length of time the migrants had lived in Tasmania was found to be significantly correlated their awareness of food information and better food consumption. 42.4% of the migrants interviewed had lived in Tasmania for over three years and many of these indicated that after a period of time they had no difficulties adapting to the Tasmanian food culture, although they had experienced some hardship at the time that they migrated to Tasmania. As stated by one interviewee, after 11 years of living in Tasmania she had adapted to the food culture although she had faced some difficulties, 'In the beginning, it was difficult to change, but as time goes by, and with having kids, I learn to adapt to the kind of food available in Tasmania... Experiences probably and the longer you stay here, the better choices you made in term of food security' (M3). Another interviewee also indicated, 'I have been here ever since I was 17 years old. So, I have been here for a period of time with local people. So, I used to their culture or styles... I think the longer you stay in Tasmania, safer your food security is, especially when you are used to the culture here' (M22). Migrants who

had lived in other parts of Australia found it easy to adjust to Tasmanian food culture. One interviewee explained that, 'We have been in Perth for ten years. As you have live in Perth for quite a long time, when you move to here, it is easier for you to adapt to the food culture here' (M14).

On the other hand, due to the differences in food habits, some migrants experienced some difficulties in changing their diets to suit the specific Tasmania food culture. One respondent experienced difficulties in diet transition during the first five months living in Tasmania. 'I craved for rice... First few weeks, I had troubles with my tummy because the changes of diet. Because previously in Philippine, I have rice for three meals. However, here just have potatoes, breads, so I not used to' (M24). In contrast, only one interviewee still had difficulties with local food (meat) after living in Australia for quite some time, 'I have been here [Australia] two and half years. I still can't eat Australia's meat' (M12).

#### **5.6.7 Household size**

The food security of migrants was influenced by the number of people in the household. This applied more to interviewees who were married with children or who lived with other family members. The living expenditure and food budget needed to be well managed for those migrants with larger families. There were more concerns about the cost of feeding family members for those who were living with large families. For example, one interviewee stated that having six members in the family had a large impact on her food expenses. Furthermore, she needed to make sure her children were eating healthy and nutritious food all the time.

*There are six of us in the family. My husband and I have four children, ranging from eight to two. Moreover, so, we have to find something that feed everyone... We try to make sure we have a lot of fruits and vegetables... So, for two dollars for a can, I try to feed six people in bunch... Having four children, the biggest thing is the cost. We have limited budget, and we have to be very careful not to go over the budget because we do not have anything from our background. So, cost probably is the biggest thing. (M18)*

### **5.6.8 Individual food preference**

Apart from the factors listed above, individual food preference was highlighted by the interviewees as a factor affecting their food security. It is personal choice as to whether to have healthy food or not, '...it is own choice to choose the food. People tend to choose unhealthy food if they keep following their heart. It is their choices' (M7). In addition, personal health and illness were also a constraint or a factor that impacted diet. Respondents with certain diseases or conditions were required to control their diet. For example, M17 controlled her diet by consuming low cholesterol and fatty foods.

*Because for me, I have high cholesterol, so I need to control. When I am buying milk and butter, I need to make sure it is skim milk and no fat. Everything is no fat. (M17)*

### **5.6.9 Exposure and familiarity**

The last factor affecting the food security of migrants was their previous exposure to and familiarity with food cultures from different countries and the age of the migrant. If migrants had previously lived in places where there was some similarity or commonality to Australia before moving to Tasmania, it was easier for them to adapt to their new environment. For example, M12 was familiar with major supermarkets (Woolworths) in Tasmania because they were also found in South Africa, her home country. This was something familiar which assisted her in adapting well to her new environment.

Many interviewees had been exposed to a variety of cultures before settling in Tasmania and this exposure was beneficial as they sought to fit into the host country. As such, one migrant said, 'We used to eat all food. When I came here, I have no problem adapting to because back home we have everything it is. So, I do not stick to my culture food only' (M23). So, M23 did not have any problems in coping with Tasmania food culture due to his previous exposure to other cultures. Another migrant also relayed on her previous experience of different cultures.

*Because I worked in Middle East, so it does not worry me in food that I eat. I get what I want here, include my cultural food. I worked in the Middle East before, for about three years. I mixed with different cultures and eat different cultural food before. (M17)*

Individual life experiences also contributed to better food security for migrants in the host country. Married women, particularly those who were housewives, felt that they had more experience in food preparation because they tended to take care of the family diet. For instance, M15 felt that her experience as a housewife meant that it was not a difficult task for her to prepare meals for herself and her family.

*I am a housewife. I know different types of vegetables which are good to health... Onions are good to cleanse the blood... Of course, broccoli is good too, and cauliflower. All these vegetables are good for health. So, I no need anyone to help me. As I am not young now, already 50, so as a housewife, I must know all these things. It is all from my experience. (M15)*

In general, the interview data revealed a range of factors that influenced the food security of migrants in Tasmania. These were mainly connected with food accessibility, adaptation, food affordability and food use. The interviewees reported that cultural, educational and language differences affected their adaptation to the new food culture. The location of shops affected food accessibility whereas their income determined food affordability. The migrants who had lived longer in Tasmania were better-adapted to the local food culture than the more recently arrived migrants. Household size may also have an impact among low-income earners, with larger households being less food secure. Individual food preferences and previous exposure and familiarity to different foods also influenced the way migrants used and experienced food security in their new environment.

## **5.7 Acculturation strategies**

The flexibility of the semi-structured interviews in this study allowed for further exploration of the lived experiences of the migrants in mitigating any food security



problems that they faced. The conversations with the migrants resulted in the emergence of several strategies which they had developed and used in order to improve their food security, these are summarised in Table 5.5.

**Table 5.5: Theme 4 – Acculturation strategies**

Theme 4: Acculturation strategies	
<b>Subtheme 1: Getting support from social network</b>	
<ul style="list-style-type: none"> <li>• Support from friends</li> <li>• Support from family members</li> <li>• Support from the community</li> </ul>	
<b>Subtheme 2: Adjusting or adapting</b>	
<ul style="list-style-type: none"> <li>• Substitution or replacement of food ingredients</li> <li>• Go without food</li> <li>• Adaptation and flexibility</li> <li>• Reduction of food intake</li> <li>• Buying in bulk</li> <li>• Awareness on food and diet</li> </ul>	
<b>Subtheme 3: Access from home country or other places</b>	
<b>Subtheme 4: Home gardening</b>	
<b>Subtheme 5: Having food related knowledge</b>	
<b>Subtheme 6: Accessing technology and social media</b>	
<b>Subtheme 7: No strategy</b>	

### **5.7.1 Getting support from social network**

The first and most noticeable strategy that migrants used was to get support from their social network: family members, neighbours, friends, colleagues and the local community. The social and information gained from social networks contributed to improving the food security of migrants.

#### **5.7.1.1 Support from friends**

The quantitative data showed that 46.0% of the questionnaire respondents received support from friends that improved their access to food in Tasmania. In line with that finding, the majority of the interviewees reported that friends were the key resource from whom they received support and information about food, ‘My friends do tell me where to buy this food, where to buy that food. We share information’ (M2). M7 talked about the friend who supported her in the past,

*Initially is through a friend of mine, I think. She was one of my high school classmates. When I was first came, that time was in Hobart, she was the one*

*who picked me from the airport. Moreover, I lived with her for a year and that was the time I needed advices and help the most. (M7)*

As information is shared, the newer migrants in turn share information about food with one another. This included information such as where to buy cheaper food. One migrant shared her experience about sharing the food with others in the community, 'I have many friends who help me. They give me advice about food... For example, in December, there were mangoes imported from mainland. We will tell everyone when they were on sale because mangoes are very expensive... Whatever comes to food, we tell everyone' (M6).

Migrants chiefly approached friends from the same home country because they could provide more information and advice relating to how or where to get specific traditional and cultural food ingredients. For example, 'Recently I went to my Filipino friend's house. She told me that there are one or two particular vegetables available in Tasmania now. So I was happy about that because I can buy the vegetables of our home country here. We have it here now' (M24). Migrants from the same cultural background provided more support, particularly to new migrants with low English language skills, than those from other cultures as they can communicate in their own language and understand one another well.

*...there are many people of my culture in Launceston. We have our community... We use the same language. They understand me, I understand them. So, the new comers no need worry. We can help them solve the problems. (M19)*

The migrants also reported that they received advice and useful information about the Tasmanian food culture from local people and neighbours. As, 'food is a popular topic to discuss', M9 said that she occasionally talked with her neighbours about food. As local people were friendly to talk to, 'they tell me about the different kind of food in Tasmania. They are my church members. They help me a lot' (M11).

Other than sharing information, some other strategies did assist migrants in terms of food and food security. For instance, some migrants received fresh food products

including fruit, vegetables and eggs as gifts from their friends who owned gardens or a farm.

*...some of my friends, they rear their own chicken coops... Sometimes they gave me eggs. Not just the chicken eggs but also duck eggs. (M9)*

*If it is summer time, I do not buy many veggies and fruits because my friends give me very fresh veggies and fruits. They have their fruit trees like apples. So they give to me if they have extra. I can store them in the fridge. Like spinach and carrots can be stored. It saves a lot of money. (M17)*

#### **5.7.1.2 Support from family members**

The second source of support the interviewees obtained was from family members, including spouses. Family members offered a lot of help and guidance about food consumption and grocery shopping in Tasmania.

*The advices from my in-laws and my friends who been here for a long time help me a lot in term of eating healthy food... (M3)*

*When I first came here, I live with my stepfather in St. Helen. He is the one who assist and teach me about the food here. (M26)*

For married migrants, the husband or wife is the person whom they trust and who helps them in their daily life. Some partners had lived in Tasmania for a long time and had a lot of experience of the local food culture; they provided useful information on food practices in Tasmania.

*My husband, he is the one who help me a lot. We went shopping and he showed me everything here. (M17)*

*When I first came to Australia, I did not know anyone, the only person I know was only Daniel [husband]. I did not know anyone else because never been to Australia... Daniel [husband] was a huge support. I neither even knows where the shops were, so he basically needs to show me where they were. (M18)*

### **5.7.1.3 Support from the community**

The community is a great source of support where people can obtain useful food information. There were several community health centres located in different areas which offered different services to assist residents to live healthier lives. For example, the community centre in Burnie is where migrants have an opportunity to meet with others,

*Every week, we meet on Friday and they will invite people to talk about healthy food, physical fitness. They come and teach us to do exercise, teach us to do gardening. They also teach us to cook the Australian way, and in return, we Asian people will cook Asian food for them to see. We exchange the knowledge. Sometimes we learn English as well; they will correct our pronunciation. (M20)*

Ethnic associations also played an important role in helping the interviewees adapt to the new country. They provided assistance on the basics of living in Tasmania, including food preparation. Volunteers were available to offer help if the migrants faced any problems about living in Tasmania. An example of community help is the Bhutanese Community of Tasmania which, 'is an organisation where all Bhutanese in Tasmania gather together. We communicate and learn with one another. We learn how to prepare food, buy food in Tasmania, how to communicate with Australian people. They do help us a lot' (M25).

### **5.7.2 Adjusting or adapting**

The interview data showed that when migrants settled in the host country, they adapted or adjusted themselves to fit into the new environment. Different adaptation strategies were employed to acculturate into the host country.

#### **5.7.2.1 Substitution or replacement of food ingredients**

As reported in Figure 4.30, 42.3% of the questionnaire respondents chose to replace food ingredients that were not available. The interviewees confirmed that they did the same when food ingredients were needed, but were unavailable. As indicated by M3, 'I found some ways or replacing the ingredients as I wanted to put in the traditional Filipino food that I want to cook'. Occasionally, the migrants altered or

changed the cooking recipe, for example, 'Try to use gravy and make my own, soups and replace them' (M18).

#### **5.7.2.2 Go without food**

When migrants could not find any replacement, they went without the food. A quarter (25.8%) of the questionnaire respondents went without the food they needed if there was no replacement. Similarly, the interviewees indicated that they went without the foods that were not available in Tasmania, 'If there is no food that we want available here, we just go without it. Give up' (M31). If they did not manage to get specific food ingredients for their cooking, 'I probably won't cook it' (M6).

#### **5.7.2.3 Adaptation and flexibility**

Adaptation is one key strategy which facilitates the acculturation of the migrants into a new food culture. The interviewees remarked on their need to be flexible in order to adjust themselves to Tasmania. They adapted to whatever food that was available in Tasmania. When certain food was unavailable, the migrants tended to, 'Learn to eat whatever they have in Tasmania because we have to eat for survive, I suppose' (M29). Another migrant stated that the multicultural aspect of Australia has made her, 'Just adapt to whatever we can handle...So, you know, you got to give up that, but you are able to adapt to whatever available here' (M12).

#### **5.7.2.4 Reduction of food intake**

There were a number of different reasons that caused the migrants to reduce their food intake. Interviewees reduced the portion size of their meals if food prices were high. One migrant commented, '...we eat fewer portions because it is too expensive. Like usually we eat 200g, now we eat only 100g' (M25). Another stated that her family struggled with the taste of Australian meat, which caused her to reduce the portion size,

*...we cut a lot of our meat diet just because we cannot handle it. We do not eat fish, so we do not care. I do not buy prawns and seafood. So, many foods have been cut off from our diets. (M12)*

#### **5.7.2.5 Buying in bulk**

Buying in bulk was another strategy that was used to address food security. One interviewee bought food in bulk if it was on sale and could be stored for a long time.

*However, sometimes I buy in bulk, like some can fish, you know, if my favourite brands really mark down, I will buy in bulk because you can store for a long time. (M9)*

#### **5.7.2.6 Awareness on food and diet**

Migrants live in a new place where most things are different from the familiar. It takes an element of effort and courage to try new food stuffs and this may need to be taken into consideration in other aspects of migrants' everyday lives. The interviewees realised that it would be helpful for them to know more about the Tasmanian food culture. Their awareness of food and diet could be improved through talking to local people who knew more about food in Tasmania,

*I observe food around me, the café and restaurant. I ask them about food... You have to be aware of what happening or going on around you in term of things that you eat. (M9)*

#### **5.7.3 Access from home country or other places**

Another strategy to cope with food accessibility and availability challenges was to access items from the country of origin or mainland Australia. Many interviewees used this strategy when their preferred food was not available in Tasmania. Mainly, they bought food from mainland Australia, 'I just paid a trip to Melbourne to buy what I needed and stored them in the freezer' (M8). Another respondent also shared his experience of bringing food from mainland Australia. Occasionally, friends or family members sent the food products to them. M33 did state in the interview that, 'On June, he [husband] will go back to China, and I ask him to buy some traditional dry food in China and take them back' (M33).

*Last week, I have bought \$300 food from Melbourne and New South Wales and bring them back to Launceston. The reasons I do so are; first, the food in Indian shop is expensive; second, there is no Nepali shop or restaurant in*

*Launceston. Occasionally, I will phone my friends in Melbourne to buy some Nepali food and post them to me if I want that food. (M25)*

Although it was convenient to import the food products to Tasmania, the added shipping costs were a concern. Some migrants felt that it was not worth the high cost of ordering the food products from other places,

*...there is a place in Brisbane who does it, import South Africa food, but it is just too costly. We would rather not pay and give it up because it just too costly. (M12)*

Other than shipping costs, another issue of concern was quarantine. Tasmania has fairly strict inter-state quarantine laws and all plant, animal and food products are required to go through quarantine inspection. The interviewees indicated that the quarantine restrictions inhibit them from bringing some food products from interstates and overseas to Tasmania.

*Quarantine. Even you buy from mainland and you bring it, you do not know. You spend money and try to bring it and you have to throw it. So, we avoid it. We get most of the things here. So, we do not like to bring anything from mainland, to be honest. (M23)*

*You are not allowed to bring fresh vegetables and some of the things... Like in Perth or Queensland, you can get some melon or different things that you can buy there. Some beautiful fruits that we crave for, but you cannot find here. Even though they packed in frozen, like durian, jack fruit, I bought them once in Brisbane, but they are not allowed to come to Tasmania. (M29)*

#### **5.7.4 Home gardening**

13.0% of the questionnaire respondents indicated that they were growing their own food (Figure 4.30) and having a garden for growing food was another strategy reported in the interviews that was used by the migrants to increase their food security. Nevertheless, the migrants did see advantages for growing food. Produce such as fruit and vegetables which were free of chemicals were believed to

contribute to healthy food for family and friends. Most interviewees planted vegetables that they often used in cooking, such as, 'Lettuce, garlic and green vegetables. We use that a lot in our cooking' (M16). They also shared the produce with their friends. The growing and harvesting of home-grown produce also helped to reduce food expenses. The interviewees also chose to plant vegetables that were difficult to find in the supermarket, such as chillies because, 'I miss all my chilli, but I do grow my own chilli plants here... I have my own food ingredient. I still can cook the dishes I like' (M20). Those interviewees who did not have much space at home used small areas such as pots to plant small plants, 'I grow some vegetables in the pots because I do not have spaces for garden. I grow onion, spinach and ginger' (M11).

*I have a home garden. I grow spring onions, because I use it all the time. I am fans of chili, so I grow it. Every year I grow different types of chilies, and... Different types of tomatoes. And fennels, because I love fennels, it closes to the flavour and texture of Chinese herbs... Chinese fennel. I grow my Chinese chai because some you cannot really get here... So I try to grow different vegetables each year or for different seasons. Mainly grow the one I like or I use for cooking all the time or expensive to buy... I do not use chemical fertilizers. I always use manure. (M9)*

Some interviewees gave reasons for not having home gardens, time management being the most common reason. One interviewee stated that she gave up managing her home garden because she did not have time although she used to have one,

*I used to have my own garden, but it is empty at the moment... Since I have my son, I have to put it aside. We had a big garden at the back of the house. We used to plan a lot of different kind vegetables, but I have to stop now. (M6)*

Another issue of concern was the cost of watering the garden. Managing a garden consumes a lot of water which was thought to lead to high water bills. M6 expressed that, 'it costs a lot of money to manage the garden, especially the water bill. That is the only thing that stopping me from putting a garden' (M6). She used to



have a home garden at the backyard, yet it was empty at the moment. She explained, 'My husband took away the rain tank which use to fill the rain water for watering the plants. So I have no way to water the plants. I have to wait him to fix the rain tank for me because I am not going to pay for the huge water bill' (M6).

### **5.7.5 Having food related knowledge**

The migrants who were equipped with knowledge about food and diet found it easier to adapt to the new food culture. According to their experience, all knowledge related to food, such as nutrition, preparation and handling, was helpful and helped them acculturate to Tasmania and live a better life. Equipped with food knowledge such as the names of food and how to prepare specific foods, the migrants felt more able to adjust to the food culture in Tasmania.

*It is very common for the chicken, beef, pork, lamb... Then as far as the meat, fruit and vegetables, it is all the same things called by different names. If I went to a store, I knew it everything in it, what to do with it. (M18)*

### **5.7.6 Accessing technology and social media**

Through the interviews, accessing technology emerged as an alternative to solve some food security challenges. Interviewees used the technology such as the internet to search for information about food, including nutrition, diet and recipes. Many searched for food ingredients on the internet and ordered them online if needed, 'So, basically internet is the one that help lots. Normally, if I need an ingredient, I will search in eBay and see if there any' (M6). Internet social networks were used as sources of information about ingredients, as such, 'Locally, in Hobart, Launceston or Burnie, whenever food ingredients that found, they [residents] will post on internet and let everyone knows it' (M6). It was also fast and convenient to, "google' cooking recipe to know how to prepare a dish' (M28).

*Internet is a good support. Yeah, very useful... I use the internet to google and search about the food, how to prepare the food... I like surfing internet about food nutrition... In regard to the cooking recipe, I search it in Chinese, not in English. (M30)*

Moreover, the widely used online social networking service, *Facebook* connected people all around the world. Through *Facebook*, migrants shared the latest information in terms of food among their group or network. One interviewee indicated, ‘...everyone is on Facebook. When we say something about a product, everyone will know it. It is very easy to know what’s going on’ (M6).

Additionally, social media including newspaper and television were useful resources to get updated information in relation to food locally and internationally, ‘You learn a lot as well from the information you get from the TV, advertisement... from the paper...’ (M3). Furthermore, television programs provided various health and nutrition information as well as a comparison of the food content for different brands, ‘We can get some health information through it, about healthy eating’ (M32). Other than local news, migrants also received the latest news from their home country through cable or satellite television, ‘We have cable TV as well. We are in touch with our culture through Filipino TV channel. We know anything new in Filipino, including food product which they do export to Australia’ (M6).

*I watch TV all the time, keep up. Not just read newspaper, I know what’s going on. Like the seafood episode, there is polluted water and you cannot really eat... And also they have compared different products in different supermarkets and which one is relatively healthier. For example, can food, like percentage of tomatoes. If you buy can of tomatoes, like whole tomato for cooking, and that is a necessity I guess for each household... So, how many percent tomatoes in that can, you not really know for different brand is different. (M9)*

#### **5.7.7 No strategy**

Along with the strategies employed by interviewees in this study, two interviewees did not have any strategies because they felt that they did not need or encounter any problems. M1 indicated that, ‘I did not use any ways to solve my problems’ (M1), while another respondent stated, ‘Most of the time, I just follow the general guide of having a balanced meal with rice, veggies and meat’ (M8).

Overall, the seven types of acculturation strategies emerged from the interview data. Social networking among migrants provided support to adapt to the new food culture. Personally, migrants adjusted themselves to fit into the food culture in Tasmania. Migrants substituted unavailable food ingredients with other ingredients or, if they wished to have their preferred food, they accessed this from their home country or elsewhere in Australia. Home gardening was recognised as a good way for migrants to have their own produce. Cultural capital including food knowledge was a good foundation for migrants to adapt well in Tasmania. The migrants also obtained more updated information through the use of technology such as the internet, social networking, television and newspaper. Despite this, there were two interviewees did not use any strategies to acculturate into their new environment.

## 5.8 Suggestions and recommendations to improve food security in Tasmania

Both survey and interview respondents were invited to give their suggestions and comments about how to improve food security in Tasmania. There were 150 (out of 301) responses to open-ended questions in the questionnaire. Both the questionnaire and interview data were integrated to form subthemes as outlined in Table 5.6.

**Table 5.6: Theme 5 – Suggestions and recommendations to improve food security in Tasmania**

Theme 5: Suggestions and recommendations to improve food security in Tasmania
Subtheme 1: Reducing the food price
Subtheme 2: Improving transport access
Subtheme 3: Increasing the availability of cultural food, fresh food and local food products
Subtheme 4: Promoting home or community gardens
Subtheme 5: Promoting community kitchens
Subtheme 6: Awareness of new food culture
Subtheme 7: Education on food and nutrition

### 5.8.1 Reducing the food price

Food price was the main issue which concerned both the questionnaire and interview respondents. From the questionnaire data (Figure 4.18), 55.8% of the

respondents rated food in Tasmania as *Expensive* and *Very expensive*. When they were asked about their views on a reduction of the food price, 84.7% of them agreed that the food price should be lowered. The migrants recommended that the food price should be lowered, particularly for healthy food such as vegetables and fruit. Many suggestions were aimed at reducing the food price in Tasmania and making, 'Prices of healthy whole foods make affordable to low income families' (QR 43). They felt that the food price in more rural and regional areas should be adjusted because, 'Living in rural areas we pay much more than in bigger towns' (QR 283). Actions were recommended to reduce food prices and, '...provide more farmer markets offering produce direct to the public' (QR 81) or, 'look for sustainable ways to provide locally grown produce with a lower price to all consumers' (QR 18).

### **5.8.2 Improving transportation access**

The respondents indicated that they were satisfied with food accessibility in Tasmania. They had sufficient access to healthy food near to where they were living. However, there was still a lack of public transport in outlying areas. One respondent indicated that, 'Public transportation should be more accessible to outlying areas' (QR 283).

### **5.8.3 Increasing the availability of cultural food, fresh food and local food products**

Regarding the food that is available in Tasmania, many of the migrants surveyed suggested that more food products should be made available in Tasmania. The increase in the number of people from different cultural backgrounds in Tasmania suggests that local food outlets and supermarkets should offer a wider range of food to satisfy the needs of residents in Tasmania, 'I think there will be good if there are more food items of cultural food available in market or supermarket' (M4). The migrants expressed a wish that the cultural foods that are available in mainland Australia should be made available in Tasmania as well.

*...some of the food they have in mainland, vegetables or fruits or meats, imported to Tasmania, it will be great for new migrants. There is still*

*different food they sell in mainland, but not in Tasmania. I think it will be good if there is more variety of food for different cultural people to choose. (M29)*

For instance, one interviewee from Nepal suggested that Nepali food stores should be available in Tasmania. There are shops selling Nepali food in mainland Australia, but not in Tasmania.

*I would suggest that having a grocery shop that sell Nepali food or Nepali food ingredients in Launceston will be best. We have about few hundreds of Nepali people in Launceston. We love our traditional food. So, it is good to have shops that sell Nepali food that is good for all of us. (M25)*

This was also suggested by another questionnaire respondent, who stated, 'If it is possible to keep the store in Launceston, it is good and easy to buy for us' (QR 133).

Within Tasmania, there was less food available in the more regional areas. Thus, it was recommended that the variety of food products in those areas be increased. For example, the interviewees who lived in Burnie proposed that, 'More Asian food products should sell in Burnie. More Asian shop or supermarkets sell more variety of Asian food products because we have different Asian in Burnie, like Malaysian, Indian or Vietnamese' (M1). Another migrant also expressed,

*We currently move from Melbourne to Burnie Tasmania. As you know to compare with big city that Burnie is a quiet place. There is not much choice for shopping. There should be more local food stores and more traditional food choices for people from different countries or cultures. (QR 130)*

Other than cultural food, the respondents also commented on the limited range of healthy food including vegetables and fruit that is available in Tasmania, 'I strongly believe vegetables are not available enough. There must be more food (vegetables) stores in Tasmania' (QR 126). Respondents recommended an increase in the options of healthy food and a, 'Wish to able to access more Asian vegetables as in

mainland' (QR 128). They would also like to see local grocery stores offering a greater variety of fresh produce.

In addition, the migrants surveyed suggested that Tasmanian grown food should be produced and sold locally. Many indicated that they supported local food products. For example, M9 'supported the local farmers and also appreciated the freshness of the food. In summer time, I go to farms to buy blueberries, cherries or strawberries' (M9). The migrants felt that the Tasmanian grown foods were fresh and natural. They suggested that the local government should keep the local food local and, 'Tasmanian food should have higher importance and should be sold in all food outlets and be kept at a fair price' (QR 172).

*Grocer should find a way to keep the food in Tasmania that will be great. We tend to grow a lot of fruits locally. However, it is really frustrating to see those fruits keep shipping to mainland... And even things like frozen vegetables, a lot of them, like peas, for example, grow, pick and send to Melbourne to be packed and then send back to us, which just add cost. So, why don't they pack it here? So, we try to help the local, growers. That is my suggestions. Keep the local food local. (M18)*

The variety of local fresh food products should be made available in local food stores and supermarkets. It was suggested to, 'Introduce more Tasmanian food to local supermarket and stores' (QR 75). Additionally, the respondents indicated that, 'food should be accessible and available locally so that people can support locally grown produce and business' (QR 84). The migrants felt that with more local food stores or markets selling fresh food, the availability and access to fresh food in Tasmania would be improved.

On the other hand, the migrants suggested that more effort is needed to promote the local stores and markets. As such, advertisements should be made to promote local food stores and markets in order to make them known to the public. For instance, one questionnaire respondent relayed the lack of information about farmers markets in Tasmania,

*Provide more local stores and information where the local stores are located. For example, there are farmer's markets with local produce at lower prices than the big supermarkets. I have been here for several years and have just heard of one located near me that I never knew existed. (QR 43)*

#### **5.8.4 Promoting home or community gardens**

Home or community gardens were viewed as a good strategy to achieve food security. The experience of interviewees suggested that home gardening provided edible food and also reduced food expenditure. Based on these benefits, it was suggested that migrants should, 'encourage people to grow more of their own food' (QR 42) to combat the food security problem,

*It would be nice if everyone can grow their own gardens because it probably solves the problems of food security. For a start, when you grow your own food produce, that's a good security for food, it is cheap and you know where it comes from. You can plant any food you like, it is better than buying them without knowing where they from. I would suggest that growing own garden be the best. (M6)*

Gardening can be done at home in the backyard, or can be practiced in groups in the community. Thus, community gardening was also highly recommended by the questionnaire respondents. A community garden is a shared space where the community can grow food and gather together. Local community members have a chance to gather and get to know each other better and community gardens help tighten relationships in the community network. As suggested by QR 293, 'It is important for the local government to fund local community gardens so that people can get vegetables, fruits and others on cheap price.' The community garden was also seen as one of the good ways to buy fresh food products at lower prices:

*Grow more and more at home and have seed swaps: teach people gardening, so that they can grow food, learn these skills and not be isolated. Community gardening has really helped us settle in and get to know people who have become our friends. We went on a permaculture garden tour in*

*Cygnets on our second day in Tasmania and it was the best possible thing we could have dreamt of doing. (QR 5)*

### **5.8.5 Promoting community kitchens**

Another alternative that was suggested to improve the food security of migrants was a community kitchen where people can gather to prepare food and eat together. Community kitchens were suggested as a way of supporting migrants or low-income earners in terms of food preparation and healthy eating,

*Provide soup kitchens, or places where cooked food is available daily for poor people as meals that require no payment, instead of giving people money to buy food (e.g., this happens charities that provide emergency relief). Offer quick and easy breakfasts in schools each morning (many children, even in wealthy families, may go without breakfast), e.g., this could be cooked oats or even just toast and spreads. (QR 81)*

### **5.8.6 Awareness of new food culture**

Awareness was an important skill for migrants living in a new environment; they needed to be aware of the new food culture within the host country. New migrants should know where to get food. In order to do this, the migrants suggested that it would be best to, 'Ask information from family and friends who have been living in Tasmania for a longer period of time' (QR 220). Being well-prepared to explore and speak to others before arriving in the new country was felt to be important as well,

*For the newcomers or new migrants, it would be best for them to get to know the availability of food in our local supermarket... Yeah, so I think it is mainly about awareness and knowing where to get the food ingredients... (M3)*

### **5.8.7 Education on food and nutrition**

Food and nutrition are closely related to food security and may have a high impact on a migrant's health. The respondents recommended that education concerning food and nutrition should be provided for migrants to educate them about eating healthily and to introduce them to the foods available in Tasmania. For example,



‘Free lesson given to whoever willing to learn... to make people well know how to handle Tasmanian food better’ (QR 236). In addition, it was felt that, ‘More information session on healthy food and diet’ would allow, ‘People can make better choices on their health and diet’ (QR 56).

Another suggestion for improving the food security of migrants was the provision of classes related to food and nutrition in order to improve food preparation skills knowledge about healthy eating. This was seen as particularly useful for those with low health literacy. The suggested training would consist of, ‘Free cooking classes for culturally different and healthy food’ (QR 53), i.e., specialised cooking classes for migrants using Tasmanian food products,

*Another thing is there should be practice or training about food in Tasmania provided for migrants, especially people like us, because many people in my community, they do not have much knowledge about good food and nutritious food. (M4)*

Furthermore, migrants were encouraged to take the initiative and use technology such as the internet and television to obtain more information about healthy foods in Tasmania. QR 52 commented, ‘Look at the internet’ and QR 220 agreed, ‘Searching info on the internet’.

Lastly, the respondents also suggested that the media should promote healthy eating through television or newspapers. Both QR 193 and 237 indicated that, ‘Public media should promote more on healthy food’ and, ‘More media support about the knowledge of healthy food’ and QR 129 said, ‘Put some health tips in local newspapers’. This was seen as a way to increase public awareness of health, food and nutrition.

## **5.9 Conclusion**

This chapter has detailed the findings from the interviews and the respondents’ responses to the open-ended question in the questionnaire. The themes and subthemes that emerged from the qualitative data have been presented. The perceptions and attitudes of migrants towards food security in Tasmania have been

clearly shown, including their understanding of food security, the significance of food security and their adaptation to the new food environment that they find themselves in. The food security issues and challenges that included food availability, accessibility, affordability, purchasing and habits have been highlighted. The factors that influenced the food security of migrants were revealed from the various interviews. Different strategies were shown to be employed by the respondents to acculturate into Tasmania's food culture. Finally, suggestions and recommendations from both interview and questionnaire data were also provided. Based on the results obtained from the quantitative and qualitative data analysis, the following chapter will offer an in-depth discussion of the findings by integrating the research data, and discussing the findings in relation to each research question and the research aim.

# Chapter 6: Discussion

## 6.1 Introduction

The last two chapters presented the quantitative and qualitative results of this study. This chapter examines to what extent the research aim and objectives have been addressed and achieved. It also seeks to interpret the integrated data findings in relation to the existing body of knowledge in the literature. It is expected that some of the findings are strongly supported by the literature whereas others will differ or diverge from those in the literature. Suggestions and recommendations to improve the food security of migrants in Tasmania are presented at the end of this chapter.

The aim of this study (detailed in chapter 1) was to investigate the experiences and perceptions of migrants of food security in Tasmania. Five research objectives were formulated in order to achieve the aim: to examine the views of migrants in Tasmania on food security; to identify the food security problems facing migrants in Tasmania; to explore the social and cultural capital which enhances the food security of migrants in Tasmania; to identify the acculturation strategies used by migrants in Tasmania in relation to food security and; to provide some suggestions for enhancing the food security of migrants in Tasmania. The findings concerning each of the objectives are addressed in the following five sections.

## 6.2 Results in relation to research objective one

**Research Objective 1:** *To examine the views of migrants from different cultural backgrounds on food security in Tasmania.*

The findings that address this research objective enable a better understanding of the perceptions and possible factors that influence the food security of migrants in Tasmania. The comprehensive qualitative data from this study provide a clear understanding of the migrants' perceptions of the term *food security*. Food security, as understood by the migrants, is related to the availability, quality, accessibility and

affordability of food. These four aspects must be fulfilled in order to achieve food security. The majority of the interviewees were satisfied with the food security in Tasmania compared to their home country. They responded positively to the food security situation in Tasmania, particularly the freshness of food products.

### **6.2.1 Migrants' understanding of the term *food security***

The interview data showed that there were four aspects to the meaning of food security from the perspective of the migrants: availability, quality, accessibility and affordability. Their first concern was food availability where the quality and quantity of food must be adequate. A proper nutritious diet for the family was also stated as one of the requirements for food security, particularly for Asian migrants because they are family oriented. In order to have food security, having food that was familiar to the migrants was important as they came from different cultures. The migrants identified that food quality (i.e., safe and fresh food) was an important element of food security and a healthy, nutritious and balanced diet was also considered to be another aspect of food security. Additionally, food security meant that food could be accessed easily at an affordable price.

The FAO (2003) defined food security as the situation that occurs when everyone has physical, social and economic access to enough, safe and nutritious food to fulfil their dietary needs and food preferences. According to the Tasmanian Food Security Council (2012), food security also embraces the aspect of available food which is acceptable by any ethnicity. These official definitions are consistent with the study's findings on the migrants' understanding of the term *food security*. The migrants studied perceived *food security* as having enough quality food for themselves and their family, and easy access to wanted food at a reasonable price. However, food stability which is a vital aspect of food security, was not mentioned in the findings. This is probably because the migrants in Tasmania did not encounter any situations without food and they had an adequate food supply. Food stability ensures that the elements of food security, including food availability, accessibility and utilisation, support all needs in the long term. Without stability, food security could not be achieved even if there is sufficient, accessible and quality food available.

The study found that the majority of migrants in Tasmania had access to adequate food and were satisfied with the current food security in Tasmania. Food quality is one of the requirements to achieve food security and contributes to safe food for all (FAO, 2008). In comparison to the food security in their home countries, the Asian migrants indicated that the food security in Tasmania was better because fresh and natural food products were available from a non-polluted environment.

## **6.2.2 Factors that influence the food security of migrants**

The lived experiences shared by the migrants in the study provided nine factors that influenced food availability, accessibility and affordability in Tasmania. These were: geographical isolation, income, cultural background, the language barrier, educational background, length of stay, household size, individual food preference, and exposure and familiarity.

### **6.2.2.1 Geographical isolation**

The quantitative findings indicated that 50.2% of the migrants travelled further to purchase food and 82.8% had their own transport. Similarly, the interviewees indicated that they used a private car to buy food, or when they had a 'big' shop or needed to go further to get a particular ingredient. This showed the important role of transport in accessing food in Tasmania. Moreover, the majority of the migrant respondents to the questionnaire showed that having their own transport (71.7%) and access to public transport (53.5%) were important factors that influenced food security in Tasmania. This phenomenon may be due to the distance between their place of residence and the food shops. In general, the further the place of residence is from the food shops the greater is the need for transport to reach the shops. Transport options are more limited in regional areas. Similarly, geographical location has been identified as a barrier for food security by various studies (Grigsby-Toussaint et al., 2010; Harrison et al., 2010; Tsang et al., 2007; Zenk et al., 2009).

In this study, overall, migrants had no difficulties with the physical access to food. Vahabi and Damba (2013) showed the two main determinants for food accessibility were the strategic proximity of residential area to the food shop and owning a car.

Many interviewees stated that they lived near supermarkets or local grocery shops which facilitated their food purchasing. Major supermarkets were located near to the migrants' homes and the majority of interviewees needed only short walking distances to the food shops. Sometimes they drove when they had a big shop or they needed to go further.

Geographical location not only affects food accessibility, but also has an impact on food availability. The interview data identified that food availability (including the type of food) varied between different areas in Tasmania, particularly urban and rural areas. The food available in Tasmania was also different from other parts of Australia. Tsang, Ndung'u, Coveney and O'Dwyer (2007) indicated the limitation of food variety according to the location. Tasmania is an island state and some food items are restricted by quarantine, which limit food type and choices. Migrants in the study revealed that there was a lack of particular cultural foods available in Tasmania when compared to cities such as Sydney, Melbourne or Perth. More cultural foods such as Chinese or Korean food ingredients were available in the large mainland cities due to a greater number of Asian grocery shops and larger migrant population. Within Tasmania, there were also differences in food availability. Few cultural grocery shops were located in the regional areas compared to the main cities of Hobart and Launceston. Certain cultural foods were only found in Hobart and Launceston. The lack of certain foods in Tasmania could influence the cultural food consumption of migrants. As shown by Grigsby-Toussaint et al., (2010), the food consumption of African-Americans and Latinos was influenced by the cultural food available in specific neighbourhoods.

Furthermore, the geographical location has an impact on the food price. The reduction in food availability leads to an increase in food price (Liese et al., 2007). The migrants felt that food prices in Tasmania were significantly higher compared to food prices in other parts of Australia, particularly for cultural food items. 55.8% of the questionnaire respondents raised the issue of high food prices in Tasmania and 34.2% were dissatisfied with the current food prices. This finding is similar to a study on food security issues in remote Western Australia indigenous communities which reported that high freight costs and irregular deliveries contributed to high

food prices (Pollard et al., 2014). Moreover, some migrants drew attention to the fact that food prices were higher in Australia than their home country. This corresponds to the findings of Chang (2014) that food prices in Australia are higher than other countries, although Australia produces and grows its own fruit and vegetables. The higher price of food as shown by the findings of this study can be a burden for some.

#### **6.2.2.2 Income**

The second barrier encountered by migrants to achieve food security was their income and socioeconomic status. 55.8% of the questionnaire respondents rated the food in Tasmania as expensive, and 84.7% agreed that a reduction of food prices in local food outlets would be beneficial. The qualitative data demonstrated that high food prices impacted low income earners the most in terms of food purchasing power. High food prices resulted in tighter food budgets and more limited food choices. This issue was also highlighted in the literature as one of the major barriers for migrants to achieve food security (Akerle et al., 2013; Anderson & Sellen, 2013; Kneafsey et al., 2013; Rosier, 2011; Vahabi & Damba, 2013).

Another concern highlighted in the interviews was the challenge of controlling food expenditure for migrants who depended on welfare support or who were unemployed. In the household budget, food expenses were more flexible compared to other expenses (Flanagan & Flanagan, 2011; Tasmanian Food Security Council, 2012) and therefore many low-income earners had a tendency to reduce their food expenses if household budgets were tight. Thus, they were more likely to eat cheaper food such as unhealthy fast food as it was beyond their financial reach to have a high quality and healthy diet.

The cost of food is a major factor influencing food choice (Barosh et al., 2014). Food prices in Australia are higher than in other countries such as the UK, US and China (Hong Kong), (Chang, 2014). Furthermore, healthy food was expensive when compared with other food (Barosh et al., 2014; Dunlevy, 2014). The prices of some healthy foods have risen more in Australia in recent years than the prices of similar unhealthy foods (Lindberg & Sacks, 2014). In order to have a healthy and

sustainable diet, a large proportion (nearly half) of the weekly income for low-income earners would have to be spent (Barosh et al., 2014; Dunlevy, 2014).

In comparison, those on higher incomes have a greater choice of food. Those on higher incomes were more financially capable of obtaining quality food in comparison with low-income groups. The interviewees pointed out the importance of income when buying healthy food. Thus, as revealed in previous studies, a healthy diet is harder to achieve and is out of reach for some people on a low income. So, it is concluded that wealthier people tend to be healthier (Borre et al., 2010).

### **6.2.2.3 Cultural background**

Another factor influencing the food security of migrants that was highlighted by the data analysis was cultural background. As outlined in chapter 4, cultural background was identified as one of the important factors that influence the food security of migrants (over 60.0% of the questionnaire respondents remarked on the importance of cultural background as a factor that influences food security in Tasmania). The study also identified that Asian migrants viewed cultural background as a more important factor for food security than migrants from other regions. Additionally, Asian migrants were more likely to seek an increase in the cultural food choices in Tasmania. This may be due to the greater differences between Asian and Australian culture, compared to other countries and Australian culture.

Cultural background influences a person's food habits and behaviours which may affect their food security. As migrants bring their personal food culture to the host country, including the differences in food preparation and food habits between home and the host country, their cultural background may negatively interfere with their ability to adapt to the new culture. The way food is prepared by Asian migrants differs from Australian food preparation. Generally, Australians use baking and grilling, while Asian migrants prefer frying. The way food is handled may also adversely impact the health of migrants. Correct food handling determines whether the food is safe to eat. For example, migrants from Indonesia shared the experience



of food handling in Indonesia where it was not their habit to store leftover food in the fridge.

Cultural background also influences food consumption. Having their traditional food made migrants feel at home and have a sense of belonging (Longhurst et al., 2009). Similarly, some food cultures help migrants to adapt and fit into the new country. For instance, an interviewee from Hong Kong indicated that both Hong Kong and Australia were historically British colonies with similar cultures. This helped her fit in with the Australian culture. Thus, cultural background has an impact on the food security of migrants in many ways.

#### **6.2.2.4 Language barrier**

Living in an English-speaking country such as Australia, English language skills are vital to communicate with and understand others. In previous studies, language has been recognised as one of the barriers to achieving food security (Dhokarh et al., 2011; Vahabi & Damba, 2013; Vahabi et al., 2011). This is a concern for migrants who have low English language skills when they move to Australia. In this study, the majority of the migrants had no problem communicating in English. The questionnaire respondents reached a reasonable understanding of English, with 44.2% of the respondents self-rating their English proficiency as *Good*. However, some still found understanding the Australian accent challenging and it took a while for some migrants to adapt to the Australian accent. Nevertheless, the accent did not affect the migrants' access to food. Migrants with poor English language skills faced difficulties in communicating and understanding information, such as reading the food labels (Anderson & Sellen, 2013). Due to limited knowledge of familiar foods and food safety information, the non-English speakers' trust in the food supply could also affect their health (House et al., 2014). In the study, those migrants with a higher English proficiency level had better knowledge about food in Tasmania than those with a lower proficiency level. Those with a higher English proficiency level had a better understanding of food information which allowed them to be more independent when food shopping. A study on the food security of migrants in Canada showed that limited proficiency in English restricted them from accessing food-related information and led to food insecurity (Vahabi et al., 2011).

Thus, it is important for migrants living in an English-speaking country to achieve English language competence in order to be more food secure.

#### **6.2.2.5 Educational background**

The educational background of a migrant impacts on their food security. Knowledge about food and diet that was learnt at school, college and university brought benefits to migrants as they bought better food. 65.1% of the questionnaire respondents completed tertiary education. 75.1% of the respondents viewed knowledge or skills related to food as an important factor for food security. A higher education qualification provided advantages to the migrants in terms of obtaining a good diet. In this study, an interviewee who had a medical background was equipped with nutritional knowledge and practiced healthy eating in daily life. The literature also suggests that knowledge learnt at school or university provides migrants with a better understanding of nutrition and diet. As shown in previous studies, those with a higher education qualification promoted healthier eating behaviours (Thornton et al., 2014). Conversely, without much knowledge about good food and nutrition, migrants are more prone to food insecurity. As indicated by interviewees in this study, knowledge about food and nutrition learnt at school or university influenced their eating behaviours and cultivated better food habits. A high proportion (88.0%) of the migrants stressed the importance of obtaining nutritional food in relation to their food security in Tasmania. Therefore, knowledge about good food and food nutrition is closely related to food security. It is also showed that the knowledge of food nutrition encourages migrants to consume healthier food such as fruit and vegetables (Peterman et al., 2011).

#### **6.2.2.6 Length of stay in Tasmania**

Recently arrived migrants have been identified as more prone to food insecurity than migrants who have lived in the host country for some time (Chilton et al., 2009; Hadley et al., 2007). Previous studies showed that the longer the period of stay in the host country, the better the migrant's food security (Chilton et al., 2009). After a period of time in the host country, migrants adapted to the new environment, had a better life and a lower risk of food insecurity. The majority of questionnaire respondents who had lived for over three years in Tasmania

encountered no difficulty with the 'new' food culture. This study also showed that the migrants who had lived over three years in Tasmania knew more about food in Tasmania than those who stayed in the state less than three years. Although they experienced some hardships at the beginning of their migration to Tasmania, the migrants reportedly adapted well and acculturated into the Tasmanian culture overtime. The findings of this study are supported by other studies related to the influence of length of stay on food security. In a study of the food insecurity of women migrants in Canada, recent arrivals in Canada faced challenges in accessing food because they were not familiar with the new food culture (Evans, 2013). Initial differences in food culture and changes in the diet were a challenge for the migrants. Longer periods of stay in the host country showed migrants had more life experiences, which led to a better acculturation and adaptation (Omidvar et al., 2013). Correspondingly, the interview data also demonstrated that interstate immigrants and those who were exposed to various cultures before migrating to Tasmania had greater advantages as they were more familiar with the food culture and adapted to the new food culture in a shorter time.

#### **6.2.2.7 Household size**

The number of people in a household is a factor that influences the food security of migrants. Household size impacts food security, with large households had higher living expenses and reduced food security (Irohife & Agwu, 2014). The budget for food must be well-planned in order to meet the needs of all family members. It is challenging for some migrants to feed their family members, especially children, and to provide them with good nutrition all the time. One interviewee feeding a family of six expressed that food cost was a concern and that a well-planned food budget was needed to make sure each family member was eating healthily. If food costs increase in this situation, it is a burden for the earner to support a big family and the food budget may have to be tightened if there is a limited income.

#### **6.2.2.8 Others**

Apart from the factors listed above, there were two other factors influencing the food security of migrants that were highlighted in this study: individual food preference and previous exposure to diverse cultures. Individual food preference

has an impact on an individual's food habits. It can be a personal choice whether to eat healthy food or not. Practice or training can be undertaken that will increase personal preferences for healthy eating. For instance, involvement in home meal preparation encouraged Canadian children to have higher fruit and vegetable preferences and to select healthy foods (Chu et al., 2013). On the other hand, the same study found that personal health and illness had an effect on diet, and that personal diet control was required to manage certain diseases and maintain health.

The second factor is that previous exposure to diverse cultures increases a migrant's knowledge of a wide variety of stimuli (including food) which makes it easier for the migrant to adapt to their new environment. Those migrants who had wider exposure to cultures different from their own were more willing to try new foods (Flight et al., 2003). The interview data from this study showed that familiarity of the environment (such as the same supermarket company) was an advantage for migrants and allowed them to fit more easily into their new environment. In addition, some of the different life stages of an individual's experience contributed positively to their adaptation. For example, a mother with children or a housewife who knows how to cook adapted to the new country in a shorter time.

## **6.3 Results in relation to research objective two**

**Research Objective 2:** *To identify the food security problems facing migrants from different cultural backgrounds who live in Tasmania.*

The data in this study provided satisfactory answers to the research questions of this objective, resulting in a better understanding of the current food security of migrants in Tasmania. This understanding helped explain the challenges and problems facing migrants living in Tasmania in terms of food security.

### **6.3.1 Significance of the food security in Tasmania**

The main finding of the data analysis in the study was that the migrants were satisfied with the current food security in Tasmania. Tasmania's food security was much better when compared to the food security in their home country. This can be due to a number of reasons. For instance, Australia was a stable food producer in

food market and produced enough food to contribute to the diets of about 60 million people (Langridge & Prasad, 2013). Thus, migrants had enough food in terms of availability and accessibility. They felt that it was safe to eat all the foods that were available in the state. The food quality in Tasmania was recognised as fresh, natural and non-polluted. One minor exception was where a migrant was surprised to find fresh green vegetables with worms.

### **6.3.2 Adaptation to food culture**

The sampled migrants had two distinct attitudes towards their adaptation to the new food culture. Firstly, they did not appear to face problems in adapting to the food culture. Flexibility and adaptability were the personal qualities that enabled the interviewees to adapt to the new food culture. Some migrants had faced difficulties in the early stages of migration, but as time passed they adapted to the food culture of the host country. One interviewee indicated that she managed to adapt to Tasmanian food after one year of living in the state. Nevertheless, there were particular foods unfamiliar to the migrants that challenged them during their acculturation to the food culture.

There were significant differences in terms of food culture, food preparation and food types between Australia and other countries. Food preparation in Asia and Australia differs markedly. Australian food preparation is more European in style (e.g., using baking and roasting), whereas Asian food preparation uses more stir fry and steam methods. The food preferences between the different cultures also varied, for example Australians prefer Western food types (bread, potatoes and dairy products), whereas Asians have rice with most meals.

There were a few factors affecting food adaptation that were identified by the interview data. Previous experience of exposure to different cultures was an advantage to migrants in adapting to the food culture in Tasmania. Some migrants ceased cooking their cultural food as the preparation time was considered too long compared to Western food preparation times. One example in the literature mirroring this finding is Burns et al. (2000), where a group of Somali migrants in Australia changed their cooking methods away from the traditional time-consuming

methods. After settling in Australia, the busier and more complex life style also influenced migrants to access more convenient food such as fast food (Renzaho & Burns, 2006). Having children also motivated adults to adapt more quickly to the new food culture. Conversely, older people still prefer traditional food and find it challenging to try something new or to change their food habits. Older age migrants are more limited in their capability to adapt to the social, linguistic, and dietary behaviours of the dominant group when acculturating into a new environment (Franzen & Smith, 2009).

### **6.3.3 Experiences of food security**

Through sharing their experiences of food security in Tasmania, the migrants identified some of the problems they faced. This section is divided into four subsections: experiences of food availability, food accessibility, food affordability and food consumption. The low response rate of migrants in this study could indicate that food insecurity is not a major concern among them and they are probably not familiar with this issue.

#### **6.3.3.1 Food availability**

One of the more prominent determinants of food security is food availability which is defined as sufficient quantities of quality food supplied to all. In order to ensure food security, it is important to understand whether migrants have sufficient quality food when they are in Tasmania. The findings of the questionnaire showed that the majority (91.0%) of migrants did not encounter circumstances where they were without food in Tasmania, which is similar to other studies in Tasmania and Australia (McLennan & Podger, 1997; Tasmanian Food Security Council, 2012). As stated in the interview data, the migrants were able to obtain everything they needed. The food choices and sources in Tasmania were sufficient and fulfilled their needs. Similarly, the majority of the questionnaire respondents expressed that food choices in Tasmania were sufficient (77.4%) and also fulfilled their needs (74.4%). However, some migrants expressed their opinion that they had limited food choices; this particularly applied to fresh vegetables and fruit, and certain cultural foods in Tasmania. The limited food choices (73.5%) and limited cultural food choices (51.9%) were rated the highest for respondents who indicated that there

was a lack of food in Tasmania to fulfil their needs. However, the interviewees remarked that there had been an improvement in cultural food choices in Tasmania compared to a few years ago. The limited variety of cultural food choices was a concern for migrants. Most agreed they would like to have more food choices (77.1%), fruit and vegetables (82.7%), traditional food choices (82.8%) as well as local food stores (70.8%) in Tasmania. Nevertheless, 65.8% of the migrants found that it was easy to obtain the traditional food ingredients that they needed.

Generally, over half the migrants had information about food in Tasmania, including where to buy food. 88.7% indicated that they had a choice of where to purchase food, with supermarkets (98.0%) as the main choice for both questionnaire and interview respondents. A wider range of food choices with cheaper price and better quality was offered in supermarkets (Liese et al., 2007; Meng et al., 2014; Zenk et al., 2009). Other than supermarkets, local food shops and cultural food shops were the other places to purchase fruit and vegetables, as well as cultural food that were unavailable in the supermarkets. Regarding the frequency of food shopping, a high proportion (83.7%) of the questionnaire respondents shopped for food weekly.

Both the study data and the literature show that the limited cultural food available in Tasmania may be due to the distribution and size of the migrant population. The low number of overseas-born population in Tasmania may affect the availability of cultural food choices due to the lower demand for cultural food. In 2006, Tasmania only had 1.1% of the total overseas-born population in Australia (Hugo & Harris, 2011). Although there has been an increase in the number of migrants in recent years, the growth rate remained the lowest of all the States and Territories (Australian Bureau of Statistics, 2014). Thus, the low migrant population may lead to a reduction of the availability of cultural food in Tasmania. As indicated by one migrant, the Asian food choices in Perth (Western Australia) were much greater than those in Tasmania because Perth has a higher density of Asian-born migrants.

#### **6.3.3.2 Food accessibility**

The second determinant of food security is food accessibility. In order to attain food security, food must be reachable both physically and economically. Physical access

to food refers to the distance from the food shops and the mode of transport used to access the food shops. 50.2% of the respondents reported that they travelled over 4km from their home to purchase food. 48.2% of the respondents indicated that they were willing to walk and 42.5% to drive less than 15 minutes to buy food. The majority (82.8%) of migrants used their own cars for food shopping. The interviewees indicated that they used cars when there was a need to travel further or had a 'big' shop. Within the quantitative data, 71.7% of migrants surveyed felt that personal transport was an important factor when buying food, while access to public transport was also viewed as important by half of the respondents (53.5%). This strongly supports the assertion that the strategic location between living place and food shop is important. Overall, the migrants did not have a transport problem when accessing food. However, when the shops were located too far away, they felt that it was not cost effective to travel further for specific food products.

#### **6.3.3.3 Food affordability**

Economic access to food is one of the important aspects for food security. Food costs influence the ability of migrants to purchase nutritious food and ensure food security. In this study, a minority of migrants (9.0%) who suffered from a lack of food stated that the high price of food was the main reason. 55.8% of the respondents rated the food in Tasmania as expensive and 34.2% of migrants were dissatisfied with the current food prices. 84.7% of the respondents suggested that a reduction of food prices would be beneficial. The interviewees also commented on the high price of food in Tasmania in comparison with mainland Australia and when compared with other countries such as the United States. Comparing the range in the price of food in Tasmania, the respondents indicated that the prices for fresh produce, such as vegetables and fruit and cultural food products, were significantly higher than for other products. The high price of food was the main concern for food affordability. Food prices have risen greatly over the past few years. In the five years between 2006 to 2011, food prices in Tasmania increased 22% particularly for fruit and vegetables (Adams, 2011; Department of Premier and Cabinet, 2011). However, the food price was not a major concern for some of the migrants interviewed as long as they were able to afford to buy the necessary food items.



A food budget was necessary for the migrants in order to control food expenses. A well-planned food budget was required, particularly for those on low incomes, who were unemployed, or had a large household to support. An interviewee with six family members described the allocation of the food budget to feed all the family members as a great challenge. The high cost of food forced some migrants to reduce the amount of food that they purchased. They also compared the cost of food in different shops before purchasing, and obtained information about places selling cheaper food.

The main reason suggested for the high cost of food in Tasmania was that it is an island state where most food products are imported, and therefore the transport costs increase the food cost. Secondly, the price of seasonal food such as fruit and vegetables fluctuated with the season and this affected the buying patterns and consumption of fruit and vegetables by migrants. Climate change in Australia also affects the availability and price of food (Friel, 2010; Quiggin, 2010). As reported by Quiggin (2010), climate change in Australia impacted the availability of fruit and vegetables between 2005 and 2007, which led to an increase in the prices. Within Tasmania, the food price also varied depending on location. The food prices were higher in more rural and regional areas such as St. Helens and Clarence Point than in cities such as Hobart and Launceston.

In terms of actual food purchasing, three main aspects were identified by the migrants: food quality, food price and expiry date. Food quality (particularly nutrition) was the first aspect that migrants paid attention to when purchasing food. Other than nutrition, the freshness of the food and whether it was healthy or not were their concerns when selecting food. Ross et al. (2010) reported that freshness and quality were the key characteristics of products that consumers were seeking so retailers tend to place freshness as a key feature in any promotion. Secondly, food price was also a concern for migrants when purchasing food, particularly for low-income earners and large households. As reported in the 2011 Food and Health Survey by the International Food Information Council Foundation (IFICF) (2011), the price of food became an important driver in influencing food purchase for American consumers. Australian consumers also consider the price

and make comparisons before buying the food (Ross et al., 2010). In order to make sure the food is in good condition and safe to eat the presence of an expiry date is essential. Migrants read the food label to check the nutrition facts and the expiry date to check freshness before they buy any food products. Over 90.0% of shoppers in South Australia, investigated packaged food label information before purchasing food (Ross et al., 2010). As introduced by the U.S. Food and Drug Administration (FDA) (2014), nutrition facts on the food label are important for consumers as a way of letting them know whether the food content and ingredients are healthy for them. The use of a nutrition fact panel on food and beverage packages along with the expiry date, brand name and package size were actively used by American consumers in a study by the IFICF (International Food Information Council Foundation, 2011).

#### **6.3.3.4 Food consumption**

The qualitative findings showed that 46.2% of the migrants surveyed ate homemade food three times a day and as reported by the interviewees, many of them preferred homemade food than takeaway food. 71.7% of the questionnaire respondents never or rarely ate takeaway food. This may have been due to the widely held belief that homemade food was simply healthier than takeaway food and that the taste of the food, especially the food in cultural restaurants was different and not authentic. Across Australia there has also been a shift in the trend from eating out to preparing food at home, due to the economic downturn (Ross et al., 2010).

Conversely, some migrants were very flexible and willing to try the different kinds of food available in Tasmania. One interviewee living in Tasmania viewed the Australian way of cooking as healthier than her traditional way of cooking, and she chose to have Australian-type meals because they were lighter than the meals she used to have in her home country.

The main type of diet highlighted in the findings was a healthy and balanced diet which contained fruit, vegetables and meat. The migrants were highly aware of the need to maintain their health. In the quantitative findings, 60.8% of the

respondents reported that they ate healthy food and a balanced diet. 81.1% of the respondents stated that they obtained good nutrition from the food they consumed. In terms of food groups, 75.4% of migrants ate fruit and vegetables daily or often. None of the migrants went without fruit and vegetables. They also consumed meat including chicken and fish; dairy products (eggs, milk, cheese and yogurt); cereals and grains. The meat consumption among migrants in this study was consistent with the Australian population where meat consumption is high and frequent compared to other countries (Ross et al., 2010). Few migrants consumed nuts and legumes. In some cases, they may have been allergic to nut products.

## **6.4 Results in relation to research objective three**

**Research Objective three:** *To explore the social and cultural capital which enhances the food security of migrants.*

In addition to the problems of food security facing migrants, this investigation explored the role of social and cultural capital to enhance the food security of migrants. The data provided a clearer understanding of the strategies related to the social and cultural capital that migrants use to improve their food security in Tasmania and identifies two important aspects: support from social networks, and knowledge and skills.

### **6.4.1 Support from social networks**

As outlined previously, the support from social networks was highlighted as a means to improve food practice in the host country. The quantitative data showed that 61.2% of the migrants indicated the importance of social support in influencing their food security in Tasmania. Support from family members, friends and the community played a vital role in helping migrants from diverse CALD backgrounds to adapt to the new food culture. Friends were the main resource (46.0% of the questionnaire respondents) for providing support and information about food. Similarly, the interviewees indicated that friends were the main support and information about food when they were in Tasmania. One migrant stated that a friend was the only person she approached about food during her first year in Tasmania. Family, relatives and the community also provided support to improve

the food access of migrants in Tasmania. In return, the migrants shared the information they had with their migrant friends. Furthermore, the interviewees indicated that those from the same cultural background supported them far more than those from different cultural backgrounds. This was particularly the case for migrants with lower English language skills.

A number of migrants also stated that they received information related to the Tasmanian food culture from neighbours and local people. Neighbours and locals not only shared and provided information regarding the Tasmanian food culture to the migrants, but also gave them excess produce such as seasonal fruit and vegetables. The migrants also exchanged with or received as gifts from friends or neighbours, food ingredients that were not readily available in Tasmania.

The findings from this study confirm that support from social networks is important for migrants in enhancing their food security level. These findings were consistent with other studies on the role of social capital on food security (Dean & Sharkey, 2011; Schmied et al., 2014; Smith & Morton, 2009). Friends act as bridging social capital and provide links with migrants to improve their food security, such as places to get cheaper food products. The strong ties between family members including spouses and relatives are types of bonding social capital that also assist migrants to improve their food purchasing. The community including neighbours and local people is either bridging or linking social capital and supports the food security of migrants in different ways. Putnam (1995) indicated that sharing food produce or harvests from the garden was a benefit derived from social capital. Studies have identified a positive association between social capital and food security. The higher the social capital, the more food secure an individual is. This means those who exhibited higher levels of social capital were less likely to experience hunger (Borre et al., 2010). By sharing the food in a community or giving food to the needy, people in a community help each other achieve food security (Fieldhouse & Thompson, 2012). People with low level of social capital also experienced a reduction in their motivation to cook nutritious meals for themselves, which had a negative impact on their food security (Lê, Murray, et al., 2013).

Bhugra (2004a) and Kristiansen et al. (2007) indicated that a lack of social support can become one of the factors leading to mental health problems and risky health behaviours among migrants. For example, Knoll & Schwarzer (2002) also reported that the lack of social support impacted on migrants' health with higher rates of heart disease. Migrants with social support had healthier lives than those with lower social support.

#### **6.4.2 Knowledge and skills**

Besides support from their social networks, knowledge and skills of food preparation that the migrants had were shown improve their access to food in their new surrounds and therefore to have an impact on their food security. The questionnaire results showed that 75.1% of the migrants rated knowledge and skills in food preparation as an important factor that influenced food security. Being well equipped with knowledge about food and diet helped migrants adapt to the new food culture. Their previous experiences in food preparation, handling and nutrition were helpful and contributed to a healthier and more food secure life. Equipped with knowledge such as the names of food and how to prepare specific foods, migrants felt more confident to adjust or fit into the food culture in Tasmania.

Related to knowledge and skills, the educational background of the migrants was also treated as one of the determinants of cultural capital (Kim & Kim, 2009).

Knowledge and skills were accumulated through education. People who had been educated about health and diet, such as the importance of food nutrition, managed their food and diet better. As indicated in the interview data, the migrants with higher educational backgrounds had better diets and were more aware of hygiene and food nutrition. Educational background also influenced eating behaviours and the tendency to choose healthy food. In addition, one migrant attended a useful course about food handling which introduced Tasmanian food and methods of food preparation. Cooking skills were essential for promoting healthy cooking and eating (Foley et al., 2011) and migrants with cooking skills had more confidence to prepare healthy meals at home.

As mentioned in the literature, knowledge and skills belong to the cultural capital that is related to the status of an individual in society (Bourdieu, 1986). Cultural capital in the form of values, perceptions, knowledge and behavioural norms about food practice provides the non-material resources to develop food practice and deal effectively with food security issues on an everyday basis (Abel, 2008). Additionally, nutritional behaviours including knowledge about the health effects of certain food products impact food preferences, choices and eating habits. Cultural capital has a significant influence on the food security of migrants, such as the way migrants access food or prepare food in their host country (Throsby, 2003). The inherited cultural beliefs and values of migrants can make it culturally challenging to adapt to a new food culture (Rosier, 2011). For example, food handling methods in Indonesia are different from those in Australia and the different method of food handling may adversely harm the health of the migrant if the food is not prepared in the correct way.

It always takes time for migrants to acculturate into a new culture. Cultural beliefs influence knowledge and skills and may affect the time it takes to adapt to the new environment. As indicated previously, the education level of a migrant is part of their cultural capital, which contributes to improve their food security. Migrants with higher education levels managed their diet better than those with lower education levels because they were equipped with the knowledge about food and nutrition, which meant that they could take the choices that led to a healthier life. Cultural capital plays an important role in enhancing the food security of migrants.

## **6.5 Results in relation to research objective four**

**Research Objective four:** *To identify the acculturation strategies used by migrants from different cultural backgrounds in relation to food security in their new environment (Tasmania).*

The findings of research objectives four led to a better understanding about the approaches that migrants were using to access to food and improve their food security. These approaches form practical suggestions and strategies for migrants to enhance their food security in their new environment.

### **6.5.1 Adjusting or adapting**

In a new environment, migrants often face different challenges to find the foods they need. Six acculturation strategies have been identified by this study: substitute food ingredients; go without food; be flexible; reduce food intake; buy in bulk; and have an awareness of the food available in the new country. Migrants need to adapt or adjust to what is available in the host country in order to fit into the new environment. In this study, substitution or replacement of food ingredients was one of the methods used to solve the problem of the unavailability of certain food ingredients. Among the six strategies to obtain unavailable food ingredients listed in the questionnaire, 42.3% of the respondents chose to replace the unavailable food ingredients with other ingredients. The alteration of cooking recipes can also be a convenient way to cook certain cultural food using replacement ingredients. This was employed by sub-Saharan African migrants in Melbourne (Victoria). They substituted lamb for camel meat and modified the recipe of their traditional food in order to acculturate into the new food culture (Renzaho & Burns, 2006). Another strategy to solve the problem of unavailable food ingredients was to 'go without food'. A quarter (25.8%) of the questionnaire respondents went without particular food ingredients, and some stopped cooking certain cultural food when they could not get specific food ingredients.

A flexible attitude to the new food culture helped migrants to adapt to the new environment. They learned to accept and use whatever was available in Tasmania. The migrants with a more flexible attitude found that it was easier to acculturate into the new food culture, than those with a less flexible attitude. Another strategy was to reduce the portion size of meals because the food cost was too high or they were not familiar with the food taste. Reducing the portion size of meals was also reported in Gallaher et al. (2013) and Akerele et al. (2013), as one of the coping mechanisms for food insecurity. Another strategy indicated by an interviewee was bulk buying certain food products that could be stored for a long time. Heinrich et al. (2008) reported that low-income Hawaiians practiced buying in bulk as one of the shopping strategies to mitigate food insecurity. Additionally, awareness of the food in the new country was considered a helpful factor to acculturate into the food

culture. Migrants would know more about food and diet through communicating with the local people. To summarise, substitution of food ingredients was the most popular strategy used by the migrants sampled when certain food ingredients were unavailable.

### **6.5.2 Accessing from other places**

An alternative, when migrants were faced with the unavailability of preferred or essential food items, was to access the items from other places, including mainland Australia and overseas. This was a successful strategy to cope with specific food accessibility and availability challenges. Using food as a gift or to exchange with friends or neighbours was another strategy used to address this problem although it was used by only 8.0% of the migrants in the study.

Importing food into Tasmania was considered difficult for two reasons: shipping cost and quarantine. High shipping costs may not make it worthwhile to order the food items from interstate or overseas. Tasmanian quarantine regulations are fairly strict particularly for fresh fruit, vegetables and meat products. There are rules and regulations for items that can be brought to Tasmania and all living creatures including plants and animals as well as food products must go through the quarantine checking process. Quarantine restricted migrants from bringing some food products into Tasmania.

### **6.5.3 Gardening**

In previous studies, gardening was recognised as a practical way to solve the problem of food security (Carney et al., 2012; Kortright, 2011). In this study, home gardening was identified as a strategy used to obtain unavailable food ingredients by only a small proportion (13.0%) of the questionnaire respondents. Conversely, most of the interviewees indicated that they practiced home gardening. Growing food contributed to the fresh and natural food on the table, such as vegetables which were free of chemicals. The home garden harvests were not only used in cooking, but could be shared with friends. The home-grown produce also helped reduce food expenses and ensured a supply of preferred foods that were difficult to find in shops.



Consistent with a study by Markow et al. (2014), this study found that very few questionnaire respondents were involved in gardening as an acculturation strategy. The reasons for not participating in home gardening were identified as limited time to manage the garden, the cost of managing a garden (particularly the water use), and the limited space for a garden. These barriers to establishing gardens have been identified in other studies and include unsuitable environmental conditions for growing specific cultural foods, insufficient space, the expense of gardening tools and residential transience (Barry, 1997; New Zealand Network Against Food Poverty, 1999).

#### **6.5.4 Accessing technology and social media**

In this technological era, the latest information can be accessed through the internet or social media. The interviewees in this study used the internet to search for food-related information, including diet, nutrition and recipes. However, only 1.5% of the questionnaire respondents used technology as a resource to get food related information. Interviewees stated that both local and international food related information can be obtained through the internet. Additionally, online social networking sites such as Facebook connected people from all around the world, and gathered and shared the latest information related to food among a group or network. For instance, Filipino migrants shared new food products available in a shop through their Facebook group so that everyone in the group would be familiar with the products.

In addition, social media including newspapers and television was a useful resource of information about health and nutrition. One migrant recalled a television program that provided a comparison of the food contents for different brands and educated consumers to become smarter buyers. Furthermore, cable or satellite television ethnic channels are also a good resource allowing migrants to keep up to date with their home country. For example, they received the latest information about a new food product being imported to Australia.

## **6.6 Results in relation to research objective five**

**Research Objective 5:** *To provide some suggestions for the enhancement of food security among migrants from different cultural backgrounds.*

The analysis and discussion of the findings in the study provided some suggestions about how to enhance the health and knowledge of migrants in order to increase their food security. These suggestions will form guidelines for migrants, non-profit organisations and policy makers to create a better food security in Tasmania.

### **6.6.1 Reduction in food price**

In order to improve the food security of migrants, food must be affordable for everyone. In terms of food affordability, the main concern for migrants is the price of food. They indicated that the cost of food in Tasmania is high, particularly for healthy food such as vegetables and fruit. Many suggestions were made to reduce the food price in Tasmania and make it more affordable for those on low-incomes or who were unemployed. The migrants also commented on the need to reduce the food price in the more regional and rural areas of Tasmania. One recommended method to reduce the food price in Tasmania was the promotion of local food products, especially fruit and vegetables, and to sell these food products directly to the public. All Tasmanians including migrants would benefit from the direct selling of local produce by obtaining local fresh and quality food products at cheaper prices.

### **6.6.2 Local food movement**

Local food movements have been gaining popularity in Australia (Ross et al., 2010) and it is important to note that Australian consumers are willing to support local food production and producers. Tasmania is an island that produces enough variety of food to feed all Tasmanians. However, Tasmanian-grown foods sold in Tasmania cost more compared to foods from mainland Australia. Thus, a local food movement should aim to sell local food locally, encourage Tasmanians to support Tasmanian-grown food, and reduce the price of locally-grown food. A more recent program that supported the local food movement was the *Tassievore Eat Local Challenge* which aimed to increase the consumption of Tasmanian-grown food,

promote Tasmanian produce and support local businesses (Sustainable Living Tasmania, 2014). Local markets are good places to buy fresh, local and seasonal food products. For instance, the Farm Gate Market (Hobart) offers quality food while supporting small business within Tasmania and building up relationships in the community (Farm Gate Market, 2011). More effort is needed to promote local stores and markets. As indicated by the interviewees, some of them did not know of the existence of farmers markets in their local area. Thus, greater action should be taken to advertise local food stores and markets to the public.

### **6.6.3 Increasing the availability of cultural and healthy food**

The migrants experienced a lack of or limitation in the cultural and healthy food choices in Tasmania. They would like to see the supermarkets and food outlets offer a wider range of food. For instance, Nepalese food should be made available in Tasmania to satisfy the food needs of the Bhutanese community which has seen a rapid growth in Tasmania in recent years. Other than cultural food, healthy food options including fruit and vegetables were felt to be inadequate. It was suggested that local grocery shops could offer more varieties of fresh produce such as Asian vegetables that were available in mainland Australia but not in Tasmania. When making a comparison with food available within Tasmania, there was less food available in the more regional areas such as St. Helens and Burnie. The migrants who lived in Burnie suggested an increase in food choices in the local food stores to fulfil their needs.

### **6.6.4 Improving transport access**

Most of the respondents had their own means of transport and were satisfied with the transport access in Tasmania. Half of the respondents viewed the accessibility of public transport as an important factor that influenced food accessibility in Tasmania. The migrants surveyed suggested that public transport could be improved to improve the access to food shops by migrants living in remote and outlying areas. This would ensure that residents living in outlying and rural areas without their own transport would have access to food.

### **6.6.5 Promoting home or community gardening**

Many studies have identified the benefits of gardening for improving food security (Carney et al., 2012; Gray et al., 2014; Kortright, 2011), yet, a low percentage (13.0%) of migrants in this study employed this practice. The interviewees mentioned how they used gardening to help them obtain food ingredients and reduce food expenses. Additionally, the migrants recommended the promotion of home or community gardening to mitigate food security problems and recommended that more people become involved. Gardening can be undertaken in individual spaces or with groups where people gather and grow food together in a shared space. Community gardening is an activity that is important for health, economy, community and family building (Lê, Murray, et al., 2013). Gardening indirectly helps to tighten the relationship between community or family members and builds strong bridging and linking social capital (Gray et al., 2014).

### **6.6.6 Promoting the use of collective kitchens**

The respondents in this study did not mention the use of collective kitchens, possibly because they did not know the existence of this food security strategy in the communities where they live. The use of collective kitchens was given as a specific recommendation to improve the food security. Collective kitchens have been shown to be a useful way of supporting low-income households and migrants to have better meals and nutrition. Through the participation in collective kitchens, food-related knowledge and skills including food preparation also increase and improve the food security of participants (Engler-Stringer & Berenbaum, 2007). Based on the benefits derived from the collective kitchens, this practice should be highlighted and promoted in the Tasmanian community. In Australia, community kitchens are operated and widely located in different states. Residents joining a community kitchen learn how to prepare food, shop, budget, access to food and work in a team (Australian Community Kitchens, 2009). The use of collective or community kitchens should be advertised better among the migrant community in order to popularise their use.

### **6.6.7 Increasing the awareness of the migrants of the new food culture**

Awareness is an important aspect for migrants when living in a new country, particularly newly arrival migrants. Greater awareness of the new food culture can help them to fit into the culture more easily and improve their food security.

Equipped with information such as where to buy food and what the foodstuffs are, makes accessing food easier for migrants. Migrants are also encouraged to take the initiative to talk to local people or people in their community so that they have up to date information related to food. Furthermore, a well-prepared attitude before arriving in the new country can be helpful and make it easier for migrants to adjust to their new environment.

### **6.6.8 Education on food and nutrition**

Migrants with food and nutrition-related knowledge had better food security and health. A suggestion was made to educate migrants with the knowledge concerning food and nutrition for a more healthy diet. The migrants felt that workshops or seminars about healthy food and diet would be useful for them not only to improve their food preparation skills, but also to educate them to make better food choices. Cooking classes demonstrating the preparation of food using Tasmanian food products can be provided for migrants by community or collective kitchens.

The use of technology such as the internet, tablets and smart phones allows access to more up to date information about local and international food. Migrants are encouraged to take the initiative to use technology to search for food and diet-related information, thereby improving their food security in Tasmania.

The migrants also thought that social media such as television, radio and newspapers should promote and support healthy eating. This would be a way to increase public awareness on health, food and nutrition for a better and healthier life.

## **6.7 Summary**

This chapter has presented the extent to which the research aim and objectives have been achieved and addressed as well as highlighted the connection between

the integrated data findings and the existing body of knowledge in the literature. A summary of the key findings concerning each of the objectives is reported below:

- In this study, methodological triangulation (the use of more than one method of data collection to provide a more complete set of findings, (Olsen, 2004)) has been employed. A questionnaire was used to collect quantitative data and semi-structured interviews to collect qualitative data. In addition, the request for open-ended comments from the questionnaire respondents, added a third dimension to the data collected.
- Research objective one examines the migrants' views of food security in Tasmania. The interview data demonstrated the migrants' understanding of the term *food security*. From the perceptions of the migrants, food security involves four criteria: food availability, quality, accessibility and affordability. This finding was consistent with the definition given by the FAO. Nine factors were identified that influenced the food security of migrants in Tasmania: geographical isolation, income, cultural background, language barrier, educational background, length of stay, household size, individual food preference; and exposure and familiarity. Geographical isolation may be a factor that affected food accessibility; however it was not a major concern in this study. Both quantitative and qualitative data showed that having transport and a strategic location between the place of residence and the food shops (e.g., commonly a supermarket) facilitated the migrants' access to food. However, Tasmania is an island state with a small population and has less food choices, particularly in fresh vegetables, fruit and culturally-specific food, compared to the big cities on mainland Australia (e.g., Melbourne, Sydney and Perth). Within Tasmania, it was also found that food choices were limited in the regional and rural areas compared to the urban areas.
- Income was a component that influenced food purchasing. The quantitative data indicated that migrants thought that the food prices were high in Tasmania and that they would like to see food prices reduce. The interviewees clarified that the high food prices were becoming a burden for low income earners or the unemployed, which restricted their food choices and ability to eat a healthy

diet. Cultural background was viewed as an important issue by migrants, particularly those from Asia due to differences in food culture including the types of food, cooking styles and food habits. On the other hand, any similarities between the migrants' original food culture and Tasmania enabled migrants to adapt to their new environment in a shorter period of time. Living in an English speaking country such as Australia, both the quantitative and qualitative analyses found that the majority of respondents did not encounter the problem of understanding and communicating in English. The questionnaire respondents stressed the importance influence of good nutrition on food security. This was supported by the qualitative data which showed that better food related knowledge leads to better food habits.

- The quantitative data revealed that the migrants who had lived in Tasmania for over three years had more information about the local food culture than those who had lived in Tasmania for less than three years. This was complemented by the qualitative data. The migrants became familiar with the new food culture after a period of time in Tasmania although they faced hardship in adapting to the Tasmanian food culture at the beginning. Household size was identified as a factor that influenced food security, where larger households found it harder to fulfil the food needs of each family member. Two other factors affecting food security were identified by the interview data: individual food preference and prior exposure to diverse cultures. It was reported that it was a migrant's personal choice whether to eat healthily or not. Previous exposure to diverse cultures was an advantage for migrants when adapting to the new culture.
- The second research objective aimed to investigate the problems facing migrants in Tasmania. Overall, the migrants were satisfied with the safe, fresh and natural food available in Tasmania. They were able to adapt to the new food culture, although there were differences in food preparation and food types. The findings showed that there was no major problem among migrants in relation to food security. However, limited culturally-specific food was identified as a concern for the migrants. Interviewees also mentioned the lack of choice in vegetables and fruit. Physical access to food was not an issue identified in this study because the majority of migrants had their own means of transport and

lived near to the food shops. In terms of food affordability, the questionnaire and interview data identified that the migrants felt that food prices were high in Tasmania, particularly for culturally-specific food. In contrast, this issue was not a concern for a few of the interviewees. Generally, the migrants ate homemade food as a preference to takeaway food. The migrants maintained healthy and balanced diets.

- The quantitative and qualitative data identified the use of social and cultural capital as strategies to improve the food security of migrants in Tasmania. Social capital, mainly social networks, helped migrants in different ways. Friends were the core support for both questionnaire respondents and interviewees. Family members, community and neighbours also provided help and information in relating to food adaptation. Knowledge and skills (a form of cultural capital) were viewed as important aspects for improving the food security of migrants. The interview data showed that migrants with better food-related knowledge and skills had better food security.
- Four main acculturation strategies were identified. Both numerical and textual data demonstrated that the migrants substituted or replaced unavailable food ingredients with others and modified the recipes when they could not find the ingredients they needed. The migrants also went without food that they could not find. Interview data further clarified that migrants did not cook the culturally-specific food if the ingredients could not be found locally. The majority of interviewees described accessing cultural food products from interstate or overseas; however, the quantitative data showed that this was not a common strategy among the questionnaire respondents. Similarly, gardening was practiced by most interviewees, but only small portion of the questionnaire respondents. Lastly, the quantitative data also indicated that a low percentage of the migrants surveyed accessed technology and social media for the purpose of food-related enquiry. This contrasted with the qualitative data which highlighted the use of the internet, online social networking (e.g., Facebook), newspaper, radio and television in the search for food-related information.
- The last research objective was achieved through integrated data from the interview and the open-ended question in the questionnaire. A list of



suggestions was presented with the purpose of enhancing the food-related health and knowledge of migrants in Tasmania:

- The launch and promotion of a local food movement should see a reduction in food price and make food more affordable for all.
- Greater choices of cultural food and healthy food such as fruit and vegetables should be made available to fulfil the migrants' needs.
- Although the migrants did not encounter any transport problems, it would be advisable to improve public transport access in the outskirts of the cities, regional and rural areas.
- Home or community gardening is a good practice that should be promoted in the migrant community.
- Collective kitchens are also highly recommended as an approach to better food security.
- Migrants should be aware of the new food culture in their host country in order to acculturate better into it.
- The knowledge and skills that migrants have about food and nutrition can be improved through education, which includes cooking classes and the use of technology.

## **6.8 Conclusion**

This chapter has examined the quantitative and qualitative analyses of the results in relation to the lived experiences of migrants in Tasmania and the research objectives. It has highlighted the significant findings and provided explanations where applicable. It has also compared the findings with previous research and theories reviewed in the relevant literature. The migrants' understandings of the term food security, their experiences of food security, the factors that influence their food security, and the various acculturation strategies employed by migrants have been discussed. In addition, suggestions and recommendations to enhance the food security of migrants have been presented. The following chapter concludes this study by presenting a summary of the research findings and highlighting the significance of the study in terms of its contributions and implications for research and future policy directions. It will also detail the personal development of the

researcher in relation to the study and, lastly propose some future directions of research.

# Chapter 7: Conclusion

## 7.1 Introduction

The previous chapter has provided a comprehensive discussion of the research findings, presented according to the five research objectives. In this chapter, the achievement and significance of the research are presented and the extent that the research aim and objectives have been fulfilled is revisited.

This chapter marks the end of the thesis and a research journey. Chapter 7 presents an overview of the research findings, their contribution and dissemination. The researcher's experiences and personal influence on this study are also briefly described. Additionally, the strengths, limitations and future directions for research concerning the food security of migrants are discussed. The chapter concludes by offering a number of recommendations to support the health and well-being of migrants in relation to food security.

## 7.2 Research achievements

The achievements of the research detailed here focus on the research findings, their significance and the dissemination of new knowledge. Each of these achievements is discussed in further detail below.

### 7.2.1 Summary of research findings

The study has achieved its main aim which was to investigate the perceptions and experiences of food security by migrants in Tasmania. The data analysis of the 301 questionnaires, the 150 written comments from the questionnaires and the 33 interviews has revealed the perceptions, experiences and challenges of food security experienced by migrants in Tasmania and the strategies they have used for improving their food security. The quantitative and qualitative findings of this study are presented in Table 7.1 overleaf and compared with those from the existing literature.

**Table 7.1: Food security issues for migrants: those found in the literature and the findings of the quantitative and qualitative data analyses of this study**

Existing literature	Quantitative data analysis	Qualitative data analysis
<ul style="list-style-type: none"> <li>• Concept of food security <ul style="list-style-type: none"> <li>- Food availability;</li> <li>- Food accessibility;</li> <li>- Food utilisation; and</li> <li>- Food stability.</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>• Perceptions and attitudes towards food security <ul style="list-style-type: none"> <li>- Understanding of food security;</li> <li>- Significance of the food security in Tasmania; and</li> <li>- Adaptation to the food culture in Tasmania.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Experiences of food security in Tasmania <ul style="list-style-type: none"> <li>- Food availability;</li> <li>- Food accessibility;</li> <li>- Food affordability; and</li> <li>- Food consumption.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Experiences of food security in Tasmania <ul style="list-style-type: none"> <li>- Food availability;</li> <li>- Food accessibility;</li> <li>- Food affordability;</li> <li>- Food purchasing; and</li> <li>- Food habits.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Views of food security in Tasmania <ul style="list-style-type: none"> <li>- Food availability;</li> <li>- Food accessibility; and</li> <li>- The importance of factors that influence food security.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Factors that influence food security <ul style="list-style-type: none"> <li>- Socioeconomic status;</li> <li>- Geographical location;</li> <li>- Cultural factors;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Factors that influence the food security of migrants in Tasmania <ul style="list-style-type: none"> <li>- Gender;</li> <li>- Region of origin;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Factors that influence the food security of migrants in Tasmania <ul style="list-style-type: none"> <li>- Cultural background;</li> <li>- Language barrier;</li> </ul> </li> </ul>

Existing literature	Quantitative data analysis	Qualitative data analysis
<ul style="list-style-type: none"> <li>- Household size;</li> <li>- Educational background;</li> <li>- Length of stay in host country;</li> <li>- Language barrier; and</li> <li>- Knowledge about food in the host country.</li> </ul>	<ul style="list-style-type: none"> <li>- Length of stay in Tasmania;</li> <li>- English language proficiency level;</li> <li>- Marital status; and</li> <li>- Educational background.</li> </ul>	<ul style="list-style-type: none"> <li>- Educational background;</li> <li>- Geographical isolation;</li> <li>- Income;</li> <li>- Length of stay in Tasmania;</li> <li>- Household size;</li> <li>- Individual food preference; and</li> <li>- Exposure and familiarity.</li> </ul>
<ul style="list-style-type: none"> <li>• Strategies to improve food security               <ul style="list-style-type: none"> <li>- Policies;</li> <li>- Government &amp; organisational;</li> <li>- Home/community garden;</li> <li>- Collective/community kitchen; and</li> <li>- Other alternatives.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Attitudes to coping strategies               <ul style="list-style-type: none"> <li>- Methods of obtaining food ingredients that are not available in shops;</li> <li>- Support to improve access to food; and</li> <li>- Assistance to adapt to the host country's food culture.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Acculturation strategies               <ul style="list-style-type: none"> <li>- Support from social network;</li> <li>- Adjusting or adapting;</li> <li>- Accessing food items from home country or interstate;</li> <li>- Home gardening;</li> <li>- Increasing food-related knowledge and skills; and</li> <li>- Accessing technology &amp; social media.</li> <li>- No strategy.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Recommendations for improving the food security of migrants</li> </ul>	<ul style="list-style-type: none"> <li>• Recommendations for improving the food security of migrants</li> </ul>

There are studies in the current literature that involve migrants and have a focus on food security; however there are no studies on the food security issues facing migrants in Tasmania. Table 7.1 shows the contribution of the new findings from the present study to the existing knowledge in the field of research.

The results of the quantitative and qualitative data analyses were presented in chapters 4 and 5. The following insights are derived on the basis of the results gained from these two chapters:

- The quantitative data analysis indicates that the migrants had enough food when they were living in Tasmania. In general, they had good information about food in Tasmania, and it was not an issue for them to access food. The migrants went shopping for food weekly and used their own transport. Food was considered to be expensive but still affordable for the migrants. Homemade food rather than fast food or eating out was their most common type of meal. They also felt that they had eaten healthy, nutritional and balanced diets over the last 12 months.
- The quantitative data analysis demonstrated the views of the migrants on food availability, accessibility and the importance of different factors in respect to their food security in Tasmania. From the perspectives of the migrants, they would prefer more food choices including traditional food, fruit and vegetables available in Tasmania to fulfil their needs. The migrants thought that food prices were high and proposed that the price of food in Tasmania should be reduced. Among the six factors identified that were likely to influence migrants to access healthy food in Tasmania, the nutritional value of the food appeared to be a very important factor. Having a balanced and healthy diet was a major contribution to the food security of the migrants. The migrants also identified their cultural background and social support as important factors that influenced their food security. It was a challenge for some migrants to adapt or acculturate into the new food culture, as they came from different cultural backgrounds and traditional food practices. In addition, social support (if present) was an essential factor that helped migrants become food secure.

- The quantitative findings not only showed the experiences, views and strategies used by the migrants but also presented the relationship between their personal profiles and their food security. Through the use of Chi-square square ( $\chi^2$ ) and ordinal logistic regression analysis, six factors were identified that have a significant effect on the experiences and views of migrants on food security: gender, region of origin, length of stay in Tasmania, English language proficiency, marital status, and educational background. For instance, the data showed that male migrants knew less about food in Tasmania than female migrants and migrants who had lived for over three years in Tasmania knew more about food in Tasmania than those who had lived in Tasmania for less than one year. In addition, the migrants with excellent English language proficiency skills knew more about food in Tasmania than those with lower English language proficiency skills. The identification of these personal characteristics that are significantly associated with food security contributes to the field of migrant food security research.
- The qualitative findings not only demonstrated the experiences, factors and acculturation strategies of the migrants concerning food security, but also their perceptions, attitudes towards and understanding of food security. The quantitative findings included the perceptions of migrants of the term *food security*, the significance of food security in Tasmania and the migrants' adaptation to the food culture in Tasmania; these could not be found in the quantitative analysis. In this study, the migrants' understanding of the term *food security* corresponded to the food security definitions derived from the literature and included food availability, quality, accessibility and affordability. From the migrants' perspective, food security can be achieved when food is sufficient, familiar, safe to eat (i.e., pollution-free); contributes to a healthy and balanced diet, is accessible when required; and is a reasonable price. The majority of interviewees were satisfied with the food security in Tasmania compared to their home country. They also had adapted well to the Tasmanian food culture, although some had encountered difficulties fitting into the Tasmanian food culture at the beginning of their time in Tasmania. This was due to various reasons, such as differences in food habits.

- The perceptions and attitudes of the migrants towards food security that were found in the qualitative data, were complemented by the findings from the quantitative data on their experiences of food security. The food security challenges facing migrants were presented in detail. The migrants shared their experiences concerning food availability, accessibility, affordability and their food habits, as well as listing their food purchasing criteria. The results of the interview data demonstrated similar results to those of the questionnaire data. For example, the interviewees stated that they had enough food for their needs and accessed food using their own transport. However, they also indicated the limited choice of cultural food products available in Tasmania. The interviewees suggested the reasons for high food prices in Tasmania compared to the larger cities on mainland Australia and overseas. Furthermore, the criteria that the migrants used when purchasing food: the food quality, food price and expiry date; were specifically identified in the interview data.
- Similarly, the qualitative data on the factors that influenced the food security of migrants was confirmed by other research findings. Nine factors were identified: cultural background, language barrier, educational background, geographical isolation, income, length of stay in Tasmania, household size, individual food preference, and exposure and familiarity. The factors *individual food preference* and *exposure and familiarity* highlighted the importance of personal choice and prior life experience on the food security of migrants in the host country.
- Apart from the challenges and views on food security, both the quantitative and qualitative findings identified the various coping and acculturation strategies that were employed by the migrants in this study. Now these identified strategies can be used as a guide for other migrants to help them cope and acculturate into the food culture of a host country. Most of the migrants obtained support from their social networks which included family members, friends and communities. Coping behaviours such as adjustment or adaptation were used by migrants when certain food ingredients were unavailable in shops. Gardening was also used as a coping strategy and has been highlighted as a method of improving food security in many studies. Additionally, technology and social media were helpful tools for migrants to enhance their food security.



Generally, migrants who used formal assistance to adapt to the food practices in Tasmania were satisfied with the assistance received.

- The textual data from the questionnaire and the interview data provided various suggestions and recommendations about how to improve the food security of migrants. Regarding food availability, an increase in the variety of fresh products such as fruit and vegetables, as well as cultural food, is suggested. Due to the recent increase in the migrant population in Tasmania, the availability of cultural food should be increased to fulfil the needs of different cultural groups. Local food movements, where food is produced and sold locally, are a recommended practice and would also be a way to reduce the cost of food sold in Tasmania. Although the majority of migrants did not encounter problems in accessing food, some suggested the need to improve transport access to help those without their own transport and who live in more regional areas to access food. In order to enhance food security, home or community gardening is highly recommended by the migrants. This not only allows them to obtain their own food products, but also strengthens relationships among family and community members. A community kitchen was also recommended as a way for migrants to gather with community members and prepare food together. As a newcomer to the host country, awareness of and sensitivity to the new food culture will make fitting into the new culture easier. Lastly, it is recommended that migrants have the opportunity to be educated about food and nutrition and to know more about healthy diets. This could be achieved through activities such as cooking classes.
- The literature review identified the cases of different food security issues from the existing literature. In the literature, culturally and linguistically diverse (CALD) groups including migrants are identified as disadvantaged and prone to food insecurity. The literature review identified that the cultural factor, language barrier and length of stay in the host country played an important role in affecting the food security of migrants. The cultural factor is a concern for migrants because they bring their cultural food practices with them when they migrate to the new country. Their food practices may alter after a period of time in the new country. In this study, all the migrants were equipped with a

reasonable understanding of the English language as this was a requirement for recruitment to the study. In terms of strategies to enhance food security, government and non-government organisations and government policies play important roles in achieving food security among the migrant population. The literature also highlighted the practice of home or community gardening which contributed to food security. Although this practice was not employed by the majority of migrants in the study, it was promoted as a method to improve food security. Collective or community kitchens as a means of enhancing food security were identified from the literature and suggested as a recommendation of the study.

In the present study, the food security situation turned out to be better than anticipated based on the literature and experience elsewhere. None of the migrants surveyed suffered severe food insecurity; none starved. Yet, they did face certain food security challenges which may affect their adaptation process and food security. They used various strategies to acculturate into the new environment or to cope with the challenges confronting them. The recommendations and suggestions from this study can become a guide for migrants to adapt to their new environment.

## **7.2.2 Significance of the study**

Apart from the research findings, the significance of the research is its contextual and theoretical contribution to the literature and body of knowledge concerning migrants. It provides insight into the needs of migrants in relation to food security and the acculturation strategies they use to enhance their food security.

### **7.2.2.1 Contextual significance**

The study contributes to the current knowledge and understanding of migrants living in Tasmania. Firstly, the study has provided comprehensive information on the food security needs of migrants. Although the migrants were satisfied with the food security in Tasmania, there were still unmet needs as indicated in the study. For instance, the migrants showed their desire to get a wider range of culturally specific foods in Tasmania. The high price of food also created challenges for some. In order to improve the food security of migrants, government or non-profit

organisations should take into account the migrants' voice on their unmet needs in respect to food availability, accessibility and affordability. The adoption of the recommendations of this study will contribute to an improvement in access to food by migrants in Tasmania.

There is a lack of research into food security in Tasmania, particularly the food security of migrants. This study is seen as pioneering as it contributes to the knowledge of food security in migrant communities in Tasmania. Additionally, it can be treated as a supplement to the existing research about food security and an understanding of the challenges, factors and strategies utilised by migrants living in a regional area.

The study results are applicable to the food security of migrants across Tasmania. Although not all the findings may be applicable to other regional areas in Australia and other countries, the study does provide a greater insight into some of the needs, perceptions and challenges encountered by migrants living in regional areas.

#### **7.2.2.2 Theoretical significance**

Studies of migrants are framed by various theories. This study is underlined by the theories of social and cultural capital and acculturation. These theories developed a greater understanding of the complexities of migration and how and by what means migrants acculturate into their new environment once they have migrated.

In this study, it was noted that two states of cultural capital acted as factors in influencing migrants to acculturate into a new food culture, namely the institutional and embodied state (Bourdieu, 1986). The institutional state of cultural capital is in the form of academic achievement or qualifications, and influences an individual's adaptation to a food culture. Migrants with higher academic achievements and those equipped with food-related knowledge adapt and fit into the new food culture in a shorter time. The embodied state of cultural capital concerns the impacted food habits which the migrants bring with them to the host country from their home culture. Migrants tend to prefer to retain their traditional food habits even though they have moved to a new country. Embodied cultural capital will act as a restraint on the adaptation by migrants to the new food culture.

Two types of social capital: bonding and bridging play contributory roles in acculturation into the host country. Bonding ties with spouses, family members and friends were identified as the main sources of support for migrants concerned with food security. Assistance from the community was also helpful in terms of food access and practice. Social capital is positively associated with better health outcomes (Putnam, 2001). Links with social support networks helped migrants and new settlers to have broader sources of information (Adler & Kwon, 2000; Burnett, 1998). Migrants obtained updated food-related information from family members, friends and communities which lead to better food security (Smith, 2009).

### **7.2.3 Knowledge transfer**

The findings and outcomes from the study have been disseminated and shared with researchers and other stakeholders:

- The research plan including the research aim and objectives was presented at the 2012 Rural Health Graduate Research Symposium of the University of Tasmania, held in Launceston.
- On the completion of the study, the researcher presented a poster entitled 'Food security of migrants in a regional area of Australia: A qualitative study' at 12th Asian Congress of Nutrition at Pacifico Yokohama, Japan in May 2015.

## **7.3 Personal development**

It is important to understand the researcher's personal development throughout the research journey. There is a close and complex interaction between the researcher as a person and the research project as an entity. Consciously and unconsciously, the engagement of the researcher in the research project has shaped and influenced the researcher. As this part deals with personal reflection on the research journey, the first person pronoun "I" is purposely used.

The research journey is like climbing a mountain with a series of steps. The journey has been a skills development process which has aided my development as a researcher. I have gained a wide range of invaluable skills and hands-on experiences which comprise the important characteristics of an independent researcher.

- The research journey made me grow academically and personally as a researcher. It was a beneficial experience to conduct research under the guidance of experienced supervisors. I gained a great deal from their experience, knowledge and skills which cannot be found in books. One of the valuable lessons I have learned from my supervisors is critical and logical thinking in research. Before a study commenced, the theoretical underpinning and logical approach of the research must be determined because they are the foundation for the whole research study. In order to ensure successful research, it is essential to have a good foundation.
- Throughout the research, I have developed and gained research project management skills. I have learned those skills from different sources including the formal training offered by the university and Centre for Rural Health (CRH), School of Health Sciences, my own hands-on experience in managing this research study, and the guidance of my supervisors. My supervisors who have demonstrated excellent management of different research projects have inspired me. Time, cost and quality are the three main aspects that determine the success of a research project. It means that a project needs to be conducted to a high standard within a predetermined time frame and budget. It may be too early for me to comment on the quality of this research, but I am confident that I have achieved the other two principals, which are time and cost.
- Another academic skill that I have achieved is communication. Throughout the research journey, I have substantially enhanced my skills in communicating through presenting my research at conferences and seminars. The opportunities have allowed me to overcome my fear of public speaking. Feedback from conference audiences has inspired and enhanced my self-esteem. Now, I am always looking forward to giving a presentation when I go to a conference.
- Additionally, this research journey has not simply enriched my general knowledge about quantitative and qualitative research, it has provided me with opportunities to acquire and sharpen my research-related skills. I have learned to use technology packages such as SPSS, NVivo and EndNote to facilitate the research process. These technological programs are indispensable research tools for researchers.

- Finally, as part of the culturally and linguistically diverse (CALD) group, this study has exposed me to the current food security experiences in Tasmania. It was remarkable to understand the food security experiences and perceptions from the migrants participating in the study. Indeed, the information that the migrants shared has also contributed to my understanding their health and well-being in Tasmania. Those migrants gave me the opportunity to listen to their life experiences and enrich my understanding of food availability, accessibility and affordability in Tasmania. The challenges that the migrants encountered have motivated me to undertake more research with the purpose of improving the quality of life for migrants in regional areas.

## **7.4 Research strengths and limitations**

The following points are considered as the strengths of the research. Firstly, the research aim and objectives were fully researched prior to the start of the study. A comprehensive literature review (chapter 2) confirmed that there was a need for an appropriately formulated study dealing with the issue of the food security of migrants in the Tasmania context.

Additionally, the use of a mixed methods research design enhances the data collection and data analysis by obtaining insights from different perspectives. To ensure the quality of the data, the reliability and validity of the research instruments were verified. Both quantitative and qualitative findings are complementary. The interview data validated and confirmed the questionnaire data and vice versa. Lastly, the study findings are well supported in the literature which suggests the significance, reliability and validation of the study.

A limitation of the research is the limited coverage of study locations. Although there are more migrant communities across regional areas in Tasmania, the researcher could only conduct the study in the four areas of Tasmania: the North, South, and North West. Therefore, the outcomes of the study may not fully capture the broad range of migrant communities in regional areas of Tasmania.

## 7.5 Future research directions

Apart from the strengths and limitations of this study, a number of future directions for research are generated from the study. More issues were identified within the study once the literature was searched and examined, but some issues cannot be addressed by the study due to its limited scope. These future directions include:

- Examining the differences between the food security experiences of migrants living in Tasmania with migrants living in regional areas of the mainland Australia.
- Exploring the food security experiences of migrants who have lived in Tasmania for over three years. The aim would be to compare their food security before and after a period of living in Tasmania.
- Understanding the role of gardening in improving the food security of migrants. Although this was not a popular choice as a strategy to enhance food security for the migrants surveyed, it was emphasised by the interviewees. As gardening has been proven in the literature as a successful strategy contributing to food security (Carney et al., 2012; Kortright, 2011), further exploration of the use of gardening among the migrant community would be useful.
- Investigating the food nutrition and health of migrants in Tasmania. Although this was not part of this study, it remains an area for future research. Food nutrition is closely related to health, which is associated with food security. However, the health and food nutrition of migrants is not well known.
- Undertaking a comparative analysis of the different acculturation strategies between Asian and non-Asian migrants use to cope with the challenges of food security in Tasmania.
- Understanding the role of non-profit organisations in assisting migrants in relation to food security. For instance, the Migrant Resource Centres or cultural associations act as a medium to assist migrants to fit into a new environment. It would be valuable to explore how these organisations have assisted migrants in acculturating to the host country.

## **7.6 Recommendations**

This study has focused on the experiences and challenges of food security of migrants in Tasmania, as well as the strategies that they use to acculturate into the new food culture. A number of recommendations are derived from the insights gained from this study and are outlined below.

### **7.6.1 Recommendation one**

Cultural differences are one aspect of the barrier that hinders the cultural adaptation of migrants. The numerous problems that the migrants encountered such as the language barrier, different food and dietary habits and inadequate cultural food ingredients were in varying degrees related to limited cross-cultural awareness. These problems can negatively influence the food security, health and well-being of migrants. Thus, in order to improve the health of migrants, more attention should be paid to promoting awareness of and sensitivity to cross-cultural differences. The misunderstandings or even conflicts that exist within the cross-cultural context should also be understood. So, migrants should improve their cultural competence and be well-prepared before moving to the new country. This can be practised through communicating with family or friends who are already living in the new country, improving their proficiency in the language of the new country and extending experiences of the new culture.

### **7.6.2 Recommendation two**

It is suggested that more support and services should be provided to and accessible for migrants, especially newly arrived migrants. The findings showed that migrants experienced difficulties in getting food ingredients because there was a lack of information or knowledge relating to food in Tasmania. Cultural differences also bring dissimilarities in food including food preparation. Therefore, it is crucial to arrive in the new country with an adequate knowledge of food and health to maintain a healthy lifestyle. It is recommended that organisations such as Migrant Resource Centres and cultural associations offer food-related support for migrants. For instance, a recommended initiative is to organise cooking classes for migrants to learn the way food is prepared in Tasmania and to introduce the types of food



available. Education on food preparation and health brings enormous benefits to migrants by ensuring good nutrition and diet.

### **7.6.3 Recommendation three**

The high cost of food was mentioned in this study as one of the challenges facing migrants living in Tasmania. The migrants found that the food prices in Tasmania were higher than on mainland Australia. The high cost of food is more likely to become a burden for migrants with larger household sizes, low-income earners or those who are unemployed and on welfare. Therefore, it is suggested that the food price (particularly the price of fruit and vegetables) should be controlled or reduced to make food affordable for all and to encourage healthier diets.

### **7.6.4 Recommendation four**

In this study, a local food movement was suggested by the interviewees as a way to reduce the food price (mainly of fruit and vegetables) and have a better food environment. Tasmania grows its own fruit and vegetables and these should be maintained locally to support the needs of Tasmanians. However, the produce is exported elsewhere such as to mainland Australia. Migrants living in Tasmania would like to have more food products which are produced and sold locally so that they can buy cheaper natural food. Thus, it is recommended that fruit and vegetables should be produced and sold locally.

### **7.6.5 Recommendation five**

The limited choice of cultural food products and fruit and vegetables in Tasmania was noted in this study. Complaints were made about the unavailability of certain food products in Tasmania that were available elsewhere in Australia. For migrants from diverse cultural backgrounds, food represents their cultural identity. Most of them prefer homemade food. However, the lack of certain food ingredients may cause them to give up cooking certain food. Therefore, a greater variety of cultural food ingredients should be available to satisfy the needs of migrants. For instance, Nepalese food should be made available in Tasmania as the population has increased in recent years. Apart from cultural food, the choice of fruit and vegetables (particularly Asian vegetables) should be increased. Migrants

commented on their craving for certain fruit and vegetables that are available on mainland Australia. Local food traders should import more varieties of fruit and vegetables into Tasmania.

#### **7.6.6 Recommendation six**

As we live in a digital age, perhaps a website headed *Food security for migrants* could be developed to provide more information regarding food in Tasmania such as local markets, Tasmanian foods and gardening. It would be beneficial for migrants to have details on food related information in Tasmania. The website would serve as the centre for migrants to access information regarding food availability and accessibility. All the data collected in this study could become the foundation for the development of a website.

### **7.7 Conclusion**

This research provides comprehensive and insightful information on the food security of migrants in Tasmania. Findings are drawn from the questionnaire of 301 migrants and semi-structured interviews with 33 migrants across Tasmania. The study shows a comprehensive picture of the food security of migrants in Tasmania including their experiences of food security in relation to food availability, accessibility and affordability; food habits or consumption; views on food security; factors that influence the food security; and coping or acculturation strategies.

The study has made a significant contribution to the field of research since there is a need to enhance the knowledge about the food security of migrants in regional areas. The study has provided lists of recommendations to bridge the unmatched gaps between the migrants' needs and their current food security.

From the researcher's point of view, research is a journey full of challenges, intellectually and emotionally. It is equally a meaningful journey for the researcher with inspiring life experiences. To conclude, the researcher would like to show a sense of satisfaction and gratitude to those who have directly and indirectly contributed to making this study success, and looks forward to the future with confidence and excitement.

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# Appendix 1 Ethics application approval letter

Social Science Ethics Officer  
Private Bag 01 Hobart  
Tasmania 7001 Australia  
Tel: (03) 6226 2763  
Fax: (03) 6226 7148  
Katherine.Shaw@utas.edu.au



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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

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15 March 2013

Dr Quynh Le  
Department of Rural Health  
Locked Bag 1372

Student Researcher: Joanne Yeoh

*Sent via email*

Dear Dr Le

Re: FULL ETHICS APPLICATION APPROVAL  
Ethics Ref: **H0012622 - Food Security and Cultural Identity of Migrants in Tasmania**

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We are pleased to advise that the Tasmania Social Sciences Human Research Ethics Committee approved the above project on 15 March 2013.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

A PARTNERSHIP PROGRAM IN CONJUNCTION WITH THE DEPARTMENT OF HEALTH AND HUMAN SERVICES

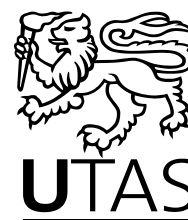
2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or [human.ethics@utas.edu.au](mailto:human.ethics@utas.edu.au).
3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.
5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**
6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Katherine Shaw  
Ethics Officer  
Tasmania Social Sciences HREC

## Appendix 2      Sample email to different organisations

Locked Bag 1372 Launceston  
Tasmania 7250 Australia  
Telephone: (03) 6324 4000 Fax: (03) 6324 4040  
Email: rural.health@utas.edu.au  
Website: www.utas.edu.au/ruralhealth



UNIVERSITY DEPARTMENT OF RURAL HEALTH

Dear \_\_\_\_

I am Joanne Yeoh, a PhD student at the University of Tasmania. I am currently undertaking a research project entitled "*Food Security and Cultural Identity of Migrants in Tasmania*", which is aimed to investigate migrants' perceptions on and experiences in obtaining healthy food in Tasmania.

Findings from this project may help migrants to better understand and access a healthy diet. It will be useful for policy makers in planning community-based programs aimed at improving quality of life of migrants in Tasmania.

Your support for this project would be greatly appreciated. If you are happy to participate, please help to bring this project to the attention of migrants in your network, and place the attached flyer at the reception area of your office. For further information please refer to enclosed information sheets.

If you would like to discuss any aspect of this study, please feel free to contact:

- Ms Joanne Yeoh on ph. (03) 6324 4053, Email: Joanne.Yeoh@utas.edu.au; or
- Dr Quynh Le on ph. (03) 6324 4053, Email: Quynh.Le@utas.edu.au; or
- Dr Rosa McManamey on ph. (03) 6324 4065, Email: Rosa.McManamey@utas.edu.au; or
- Dr Thao Le on ph (03) 6324 3696, Email: T.Le@utas.edu.au.

Either of us would be happy to discuss any aspect of the project with you.

Thank you for your kind assistance.

Yours sincerely,

Joanne Yeoh

## **Appendix 3      Flyer for participant recruitment**

### **PARTICIPANTS NEEDED**

Food security refers to the ability of individuals to acquire food that is sufficient, reliable, nutritious, safe, acceptable and sustainable.

In this study “migrant” refers to people who are overseas born and live temporarily or permanently in Australia.

If you:

- are a migrant who has basic understanding of English
- are aged 18 years or over
- live in Tasmania.

We would like to invite you to participate in a survey entitled:

**“Food Security and Cultural Identity of  
Migrants in Tasmania”**

**Please contact:**

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**It will be a great opportunity to share and express  
your opinions regarding food security in Tasmania!**

## Appendix 4      Research examining food security

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>THEME 1: FOOD SECURITY</b>							
<b>Adams, Burns, Liebzeit, Ryschka, Thorpe and Browne (2012)</b>	Geelong, South Eastern Australia	Urban Aboriginal community	Action research	To understand meanings of food and food insecurity of urban Aboriginal community	Meal types	Photo-voice method	Food selections of Aboriginal people were influenced by family harmony, collectivism and satiation of hunger with cheap high carbohydrate and fat foods. They also highly depend on hunter-gatherer approach. In order to improve food security, Aboriginal organisations may provide further leadership for healthy eating and food security through workplace food policies and partnerships with food security agencies.
<b>Anderson and Sellen (2013)</b>	Toronto, Canada	36 Latin American and Sri Lankan Tamil newcomer mothers	Qualitative	To investigate household food insecurity and caregivers' conceptualisations of the relationship between food and health among Latin American and Sri Lankan Tamil	Household income, employment status, household food insecurity	In-depth and semi-structured interviews	All participants had experienced household food insecurity since they arrived in Canada. The households' acquisition of adequate food that led them to household food insecurity had restricted by low income. It is recommended that support for employment and social assistance can be given to ensure the ability to meet minimum dietary needs for newcomer children.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				newcomer mothers living in Toronto's Jane and Finch neighbourhood .			
<b>Australian Institute of Health and Welfare (2010)</b>	Australia	Australians	Report	To identify health conditions of Australian.	Health risks, diseases, life expectancy and death	Surveys	The key findings in this report are health conditions of Australian including health risks and diseases in different life stages of population; special cares and needs put on group that need special care: migrants, indigenous people, disability people, people live in remote and rural areas, and veteran community. They also pay attention in the health services, workforces and expenditures in Australia.
<b>Bastian and Coveney (2013)</b>	South Australia	24 stakeholders in South Australia	Qualitative interpretive approach	To examine how food security stakeholders in South Australia view the issue.	Food security definition; experience of food security; determinant of food security; potential solutions to improve food security; and key	Semi-structured interviews	The findings reveal four dominant representations for food security that locate responsibility for the issue across different stakeholders: individuals, governments, communities and private enterprise. These representations hold different underlying assumptions about the role of government in addressing the issue; the neo-liberal perspective supports a reduced role for government whereas the social determinant of health perspective calls for greater government intervention.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
					stakeholders for food security in South Australia		
<b>Burns (2004a)</b>	Urban Melbourne , Australia	45 Somali women	Qualitative	To assess the dietary changes that occurs for migrants moving from a low-income to a high-income country.	Usual dietary intake and frequency of consumption of 54 foods	Structured interviews	Participants maintained the structure of the diet from their country of birth. They did increase their consumption of some processed food. 60% of the sample was overweight or obese. The dietary changes were consistent with increased energy intake and altered nutrient density.
<b>Carter, Lanumata, Kruse and Gorton (2010)</b>	New Zealand	18950 respondents living in New Zealand	Mixed methods	To investigate the demographic and socio-economic determinants of food insecurity in New Zealand and whether these determinants vary between males and females.	Demographic, socioeconomic status	Survey of Families, Income and Employment (SoFIE), face to face interviews	The determinants of food insecurity are socioeconomic status. Income is the strongest predictor of food insecurity. The associations of demographic and socioeconomic factors with food insecurity are similar in males and females. However, females experienced greater food insecurity than male. Most females are sole parent and sacrifice for the family.
<b>Dean and</b>	Central Texas, the	1803 adults	Quantitative	Asses the association	Food insecurity,	2006 Brazos Valley	Participants with low social capital, higher levels of perceived personal disparity, rural residence,

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Sharkey (2011)</b>	U.S.			between food insecurity and measures of perceived personal disparity and perceived social capital in a region of Central Texas, USA comprised of one urban and six rural counties.	perceived social capital, perceived personal disparity and socio-demographic	Community Health Assessment	residence in a low-income or poor household, minority group membership and lower levels of educational attainment were more likely to experience food insecurity.
<b>Delavari, Farrelly, Renzaho, Mellor and Swinburn (2012)</b>	Victoria, Australia	33 recent Iranian immigrants	Qualitative	To understand the changes that Iranian immigrants experience in relation to the determinants of obesity after migration to Victoria, Australia.	Individual level acculturation, environmental level changes	Focus group	Individual level acculturation (e.g., diet, body size, attitudes) and environmental level changes (physical/structural and sociocultural) are experienced by participants after immigration. They also experienced stress at the beginning of migration period, which affected diet and physical activity habits. Gender and the effect of political/religious changes were also important factors.
<b>Givoni and Palermo (2010)</b>	Victoria, Australia	Victorian Healthy Food Basket (VHFB)	Review paper	To highlight the importance of monitoring food cost of healthy	The cost of healthy food	Surveys on VHFB	Increasing of food price in rural and remote areas has been a concern to healthy food affordability. It is important to consider food cost in addressing food insecurity.



Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
food.							
<b>Hughes (2014)</b>	Australia	University students	Review	To explore the distribution and severity of food insecurity and related behavioural adaptations, among Australian University students.	The prevalence, distribution and severity of food insecurity, and related behavioural adaptations, amongst University students	A recent Australian study on food insecurity of university students	Food security is an important nutrition issue among vulnerable population groups such as the young and the socioeconomically disadvantaged. University students can often fit these criteria being young, having relatively low levels of disposable income (at least in the short-term) and often living away from home for the first time. A recent Australian study suggests that food insecurity is a significant issue for many university students and that this insecurity may have negative effects on student health and learning outcomes.
<b>Hunter (2014)</b>	Australia	Older Australians	Review	To provide a brief overview of some of the issues that older people experience with accessing food.	Three factors that influence food security	Other researches on food security for older people	Individual, social and environmental factors are determinants of food security for older Australians. Individuals have their own food values and preferences. Personal values not only influence what people eat, but whether they choose to shop, prepare and cook meals. Illness and ageing can also affect the sensory attributes of food, as well as, the ability to shop and prepare food. It is also showed that older people with low incomes are more likely to have poorer or less diverse diets. Social factors including older people social networks influencing

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
							their healthy eating. Cultural factors are also important when considering food security for older adults. Environmental factors such as distances between shop and living place influence the types of food consumed by older adults.
<b>Longhurst, Johnston and Ho (2009)</b>	Hamilton, New Zealand	11 migrant women from South Africa, Singapore, Korea, Iraq, Thailand, Hong Kong, Somalia, Japan, Indonesia, Mexico and India	Ethnography	To examine how the visceral can shape (and be shaped by) a range of socio-political relations, concentrate on food and eating as a central political issue and illustrate how a visceral approach can push understandings of migrants' experiences.	Home cook dishes, cooking experiences in new country	Visceral approach	Migrant women are comfortable in their domestic spaces and largely experience cooking not as a burden but as an important way of staying viscerally connected with their 'old home'. Creating a domestic space where the body feels 'at home' can help resituate and reconstitute the diasporic subject.
<b>Magarey, McKean and Daniels (2006)</b>	Australia	8891 19-to-64 year-olds Australian from all	Qualitative	To evaluate the fruit and vegetable intakes of Australian adults	Daily food and beverage intake, food habits and	Interviews	Only 11% of adults consumed vegetables and fruit in their daily life. Males were less likely to consume fruit and vegetables compared females and older adults.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		Australian states and territories		aged 19-64 years.	attitudes		
<b>Olorunfemi, Aderinola and Ajibefun (2009)</b>	Nigeria	300 heads of households	Mixed methods	To identify and estimate the determinants of household food security in South western Nigeria.	Ages of heads of households, household sizes, and number of wage earners per household, household income, quantities and types of food consumed and household food security problems; secondary data such as population growth and price indices.	Questionnaire and interview	The determinants of household food security: household size, food expenditure, percentage of household food expenditure for carbohydrates, percentage of household food expenditure for animal protein, household income per month and education status of head of household. From the findings, it is recommended that the family size should be reduced to reduce pressure on family income.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Radermacher, Feldman and Bird (2010)</b>	Victoria, Australia	37 people (13 male and 24 female), between 58 and 85 years of age	Quantitative, focus group	To investigate the experiences and barriers to food security of community-dwelling older people.	Demographic	Questionnaire and 5 focus group	The potential barriers to access nutritious food choice are: cost and financial considerations, health and physical capacity, transport, intrapersonal factors, and lack of availability of preferred food.
<b>Renzaho and Burns (2006)</b>	Melbourne metropolitan and Melbourne fringes	139 households from sub-Saharan Africa (SSA)	Mixed methods	Describes sub-Saharan African (SSA) post-migration food habits and eating patterns; and examine how the food habits of SSA households in Victoria reflect post-migration acculturation.	Demographic, food habits and eating patterns	Cross-sectional survey, semi-structured interviews	Sub-Saharan African (SSA) migrants and refugees indicated dietary acculturation characterised by three processes: substitution, supplementation and modification of recipes. They experienced difficulty in locating their traditional foods; started to adopt fast food and take-away food. Consequently, rapid increase in weight and chronic diseases occurred among SSA migrants in Victoria.
THEME 2: FACTORS THAT INFLUENCE FOOD SECURITY							
Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/me asures identified	Instrument used	Study findings
<b>Barosh, Friel,</b>	Great	82 food	Quantitative	To compare and	Food price of	Australian food	The cost of the H&S basket was more than the

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Engelhardt and Chan (2014)</b>	Western Sydney, Australia	outlets in 5 CDs		contrast the capacity of subsystems to provide nutritious and affordable food in a sustainable way.	typical basket and Healthy and Sustainable (H&S) basket; average weekly household food expenses	basket surveys	typical basket in all 5 socioeconomic neighbourhoods, with most disadvantaged neighbourhood spending proportionately more (30%) to buy the H&S basket. Within household income levels, the greatest inequity was found in the middle income neighbourhood, showing that households in the lowest income quintile would have to spend up to 48% of their weekly income to buy the H&S basket, while households in the highest income quintile would have to spend significantly less of their weekly income (9%).
<b>Bowman (2006)</b>	The United States	2594 women in US	Quantitative	The aim of the study was to compare socioeconomic, dietary, and health status of women food shoppers who considered food price very important with those of women who did not consider food price very important.	Socioeconomic characteristics, dietary intakes, fat reduction practices, and health status	Diet and Health Knowledge Survey (DHKS), Continuing Survey of Food Intakes by Individuals (CSFII)	More African-American and Hispanic women food shoppers were likely to consider food price very important when buying food. The women who considered food price very important were more likely to live in low-income, food-insecure households; receive food stamps; have low education; rent; and be employed as service workers. They ate a low amount of relatively high-price foods like non-starchy vegetables and drank more sweetened fruit drinks. A low percentage of them adopted dietary fat reduction strategies and read food labels. They are more likely to be overweight and have health problems such as high blood pressure, heart disease, and diabetes than

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
							the others. Dieticians working with low-income food shoppers should address cost-effective ways to buy seasonally available fruits and vegetables and promote dietary fat reduction strategies.
<b>Burns, Bentley, Thornton and Kavanagh (2011)</b>	Melbourne, Australia	Food shoppers in each household (n=2564)	Cross-sectional multilevel quantitative study	To describe associations between demographic and individual and area-level socio-economic variables and restricted household food access due to lack of money, inability to lift groceries and lack of access to a car to do food shopping.	Restricted food access, association between demographic and socio-economic variables with each restricted household food access	Victorian Lifestyle and Neighbourhood Environments Study (VicLANES)	A lack of money was significantly affecting the young and single parent households. Difficulty lifting was more likely occurred among elderly and those born overseas. The youngest and highest age groups reported reduced car access, as did those born overseas and single-adult households. All three factors were most likely among those with a lower individual or household socio-economic position. Increased levels of area disadvantage were independently associated with difficulty lifting and reduced car access.
<b>Burns and Inglis (2007)</b>	Melbourne, Australia	Residents in Melbourne	Quantitative	Assessment of access to healthy and unhealthy foods using a GIS accessibility	Distances to and from food outlets, healthy food access	Survey	Most residents lived within 8-10 minutes car journey to a major supermarket, have good access to a healthy diet. More advantaged areas are closer access to supermarkets; conversely less advantaged areas had closer access to fast food

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				programme in a large outer municipality of Melbourne.			outlets.
<b>Champagne et al. (2007)</b>	36 countries in the Lower Mississippi Delta region of Arkansas, Louisiana, and Mississippi	1607 White and African American adults	Quantitative	To determine if measures of diet quality differ between food insecure and food secure adults in a rural high-risk population	Food security status and diet quality, as defined by adherence to the Healthy Eating Index and Dietary Reference Intakes by determinations from self-reported food intake (1day intake).	Random digit dialling telephone survey	Food insecurity is associated with lower quality diets. Food secure individuals consistently achieved higher percentages of the Dietary Reference Intakes than food insecure individuals. It means food secure individuals have more nutrition and high diet quality.
<b>Chi, Masterson, Carle, Mancl and Coldwell (2014)</b>	The United States	2206 children aged 5 to 17 years	Quantitative	To examine associations of household socioeconomic status (SES) and	Food security level, caries prevalence, SES	US National Health and Nutrition Examination Survey	Higher SES was associated with significantly lower caries prevalence. Children from low or lower food security households had significantly higher caries prevalence. Food insecurity did not appear to mediate the SES-caries relationship.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				food security with children's oral health outcomes.		(NHANES)	
<b>Cock et al. (2013)</b>	Limpopo province, South Africa	599 households in the rural areas of Limpopo	Mixed methods	Investigates the food security situation of rural households in the Limpopo Province.	Households characteristic, food security and poverty levels in the area	Survey and focus group	Half of the sample reported that they were in severe food insecurity. There are three main determinants of household food security, including human capital (education, household size and dependency ratio), household income and location. The findings indicated that policy priorities should be focused on the promotion of rural education as education is significant correlated with food security; and creating an enabling environment for the rural labour market.
<b>Cuesta, Briand and McManus (2011)</b>	Perth, Western Australia	38 low-income earners with type 2 diabetes (T2D)	Qualitative	To explore food security issues faced by low-income earners living with T2D as part of a broader investigation of the impact of socio-economic disadvantage on the experience of	Relationship between socio-economic position and diabetes health outcome	Focus group and semi-structured interview	Access to healthy food was not always realised, as many participants depended on others for food provision and meal preparation and had little control over their diets. Majority reported cost and physical barriers relating to functional limitations and lack of transport. They struggled to accommodate the price of healthy food within a limited budget.



Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
diabetes.							
<b>Dhokarh, Himmelgreen, Peng, Segura-Pérez, Hromi-Fiedler and Pérez-Escamilla (2011)</b>	Puerto Rican	200 low-income female Puerto Rican caregivers with at least 1 child 12-72 months old living in Hartford, CT	Quantitative	To examine whether acculturation and social networks influence household food insecurity in an inner-city Puerto Rican community.	Demographic and socioeconomic participant characteristics, acculturation, social networks, reciprocity, and household food security.	Survey using Radimer/Cornell Hunger Scale	Significant food insecurity risk factors included: being unemployed (no income); being single; being born in the United States; speaking only Spanish (lack of social network); planning to return to Puerto Rico (low level of acculturation); almost never/never attending Hispanic cultural events (lack of social network); and food stamps lasting less than a month (poor food stamp management skills).
<b>Flanagan and Flanagan (2011)</b>	Tasmania, Australia	66 participants in Tasmania	Qualitative	To consider whether the cost of living for people on low incomes is higher than for people on higher incomes.	Demographic and socioeconomic status	Interviews	People with low income experienced much more pressure in living cost, including food expenses. The Australian Government urged to review the income to allow adequate income to support living allowances.
<b>Gallegos, Ellies and Wright (2008)</b>	Perth, Australia	51 newly arrived refugees, resident in Australia for less than 12	Quantitative	To identify food insecurity and examine its association with socio-demographic factors in a group	Socio-demographic details relating to; cultural background, number of	Structured questionnaire based on National Nutrition Survey	71% of the sample have reported run out of food. The most common reasons for running out of food were related to large household bills, late welfare payments, poor household skills, sending money 'home', transport issues and poor budgeting skills. The coping strategies for refugees can focus on

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		months and who were receiving torture and trauma counselling		of newly arrived refugees.	children and adults in the household, visa class and length of time in Australia; and food security level	(1995)	community food security strategies will assist in building community capacity, facilitate the retention of cultural integrity, restore and maintain dignity.
<b>Grutzmacher and Gross (2011)</b>	The United States	92 low-income parent-child dyads	Cross-sectional study	To examine the relationship between household food security and children's and parents' fruit, vegetable, and breakfast consumption and fruit and vegetable availability.	Fruit and vegetable intake, breakfast consumption, and fruit and vegetable availability in home and school.	Parent-child surveys	36% of household in low food security were reported having low fruit and vegetable intake. Students from households with low food security who were not participating in school nutrition programs had the lowest vegetable consumption and the fewest number of days consuming breakfast, indicating a relatively greater need for enrolment than their peers.
<b>Hadley, Patil and Nahayo (2010)</b>	The United States	281 refugees	Mixed methods	To examine both income and non-income factors associated with food insecurity in a	Food environment, English language competency,	Surveys, interviews	Nearly half of the sample notified difficulty in navigating the food environment. Income and education level were associated with lower food insecurity, while difficulty in the food environment was associated with high food insecurity. So, the

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				sample of refugees resettled in the United States.	duration of residence in the United States, scores on a "food difficulty" index		results suggested that income is an important constraint.
<b>Hadley, Zodhiates and Sellen (2007)</b>	Mid-sized city in north-eastern USA	101 caregivers with children under the age of 5 years and who have been living the USA for fewer than 4 years	Qualitative	To assess the occurrence and severity of food insecurity, and examine associations between food insecurity and measures of socio-economic status and indicators of acculturation.	Food insecurity status, socioeconomic status and measures of acculturation	Structured interviews with 6 months follow-up	Food insecurity was indicated in 53% of households. The occurrence of food insecurity was associated with socio-economic status such as income, employment status and participation in the Food Stamp Program. For those households who had been in USA for 1 year or less have higher food insecurity compared households who had been in USA at least 3 years. The difficulties in language and shopping environment are challenges for households who had shorter time of stay in USA.
<b>Harrison, Lee, Findlay, Nicholls, Leonard and Martin (2010)</b>	Queensland, Australia	89 stores in 5 remoteness categories	Quantitative	Assess changes in the cost and availability of a standard basket of healthy food items (the Healthy Food	Cost of HFAB	Analysis of 5 cross-sectional surveys (1998,2000,2001,2004 and 2006)	Within 6 years, the cost of Healthy Food Access Basket (HFAB) has increased around 50%. The cost of HFAB in very remote stores was higher compared major cities.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				Access Basket [HFAB]) in Queensland.			
<b>Kavanagh, Thornton, Tattam, Thomas, Jolley and Turrell (2007)</b>	Melbourne, Australia	4,913 participants in 50 small areas in Melbourne	Quantitative	Examines the importance of area socio-economic status (SES), neighbourhood environments, individual perceptions, attitudes and knowledge in relation to three important health behaviours: food purchasing for household consumption; physical activity; and alcohol consumption.	Behaviours, knowledge and attitudes, perceptions of the local environment	Survey	VicLANES examines the importance of area socio-economic status (SES), neighbourhood environments, individual perceptions, attitudes and knowledge in relation to three important health behaviours: food purchasing for household consumption; physical activity and alcohol consumption. Compared with people in high SES areas, people in low SES areas were less likely to purchase groceries that are low fat, high fibre, low salt and sugar; purchase fruits and exercise at levels that are sufficient for health. People in low SES areas have low knowledge and attitude in nutrition and healthy food. Besides, low SES people also less conducive to physical activity, particularly walking, than residents of advantaged areas.
<b>Kettings, Sinclair and</b>	Australia	Two typical Australian	Quantitative	To examine the cost of healthy food	Cost of the meal plan with	Survey	Welfare-dependent families need to allocate at least one-third of their weekly income to food to

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Voevodin (2009)</b>		welfare-dependent families		habits for welfare-dependent families in Australia	income		eat according to public health recommendation. So, low income households could use strategies to reduce food expenses such as buy discounted products or in bulk.
<b>Kilanowski and Moore (2010)</b>	The United States	50 mothers of children with ages 2 to 13 years from Latino migrant farm worker families	Descriptive cross-sectional	Examines the level of household food security of migrant farm worker families.	Demographic, level of household food security and food intake of their children	Self-administered questionnaire (U.S. Household Food Security Survey, USHFSS and Food Frequency Questionnaire)	Only 30% of participants are found to be in food security; 52% in low and very low food security. The household size has influenced the level of food security. The larger the family size, the lower the food security.
<b>Kirkpatrick and Tarasuk (2010)</b>	Toronto, Canada	484 low-income families who had children and who lived in rental accommodations	Cross-sectional	Examines the association between household food security and neighbourhood features including geographic food access and perceived neighbourhood social capital.	Level of food insecurity, characteristic of neighbourhood	Surveys	Food insecurity was pervasive, affecting two-thirds of families with about a quarter categorized as severely food insecure, indicative of food deprivation. Food insecurity was associated with household factors including income and income source. However, food security did not appear to be mitigated by proximity to food retail or community food programs, and high rates of food insecurity were observed in neighbourhood with food geographic food access. While low perceived neighbourhood social capital was associated with

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
							higher odds of food insecurity.
<b>Kneafsey, Dowler, Lambie-Mumford, Inman and Collier (2013)</b>	United Kingdom	230,000 adults	Mixed methods	Develops understandings of the implications of neoliberal constructions of the consumer as a driving force in moves towards more secure food systems.	Perceptions of consumers on food security	Survey and interview	First, it is important to retain the issue of economic access to food at the heart of discussions of food security, so that the concept is not reduced to the problem of how to increase agricultural productivity. Second, it is necessary to recognize the importance of food quality to consumer perceptions of household food security. Third, consumers do not necessarily share the neoliberal view that consumer choice is the engine for sustainability and food security. On the contrary, consumers in our research were well aware that food prices and the choices made available are shaped by forces beyond the control of individual shoppers.
<b>Le, Auckland, Nguyen, Terry and Barnett (2013)</b>	North West Tasmania, Australia	22 young people aged between 18 and 28; 5 key stakeholders and representative from different	Qualitative	To examine the food security challenges experiences among vulnerable youth in North West Tasmania.	Youth's food security and health issues; stakeholders and representative perspectives on youth attitudes towards food,	Face-to-face interviews, focus group	A proportion of young residents in the North West Coast of Tasmania were threatened by food insecurity, which was caused by a combination of factors including patterns of food consumption and dietary behaviours. Those with higher financial difficulty due to the lack of a stable job were significantly more vulnerable to food insecurity and faced a higher chance of having health problems.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		communities and state organisations			acceptance of current situation and potential factors to impact youth behaviour		
<b>Kruger, Stonehouse, von Hurst and Coad (2012)</b>	New Zealand	134 South Asian women who live in Auckland	Qualitative	To investigate if the addition of an in-depth interview focused on cultural dietary practices could improve the quality of dietary data from food records among South Asian women in New Zealand.	Dietary especially focus on culture specific foods and dietary practices	In-depth probing interview	South Asian women preferred to consume more dairy products, such as full cream milk rather than skim milk. Fat and energy dense products including cream and coconut products were commonly use in protein dishes such as fish, legume, vegetables curries or chicken korma. One of the key differences from traditional South Asian women is the choice of cooking oil use in cooking. The use of ghee has been replaced by plant oil although the quantity of fat used in food preparation is still high.
<b>Kuyper et al. (2006)</b>	California	22 low-income Latino mothers with children, ages 4 to 5 years, in the focus groups and 85	Qualitative	Describes the development and validation of a tool to measure the degree of past food insecurity in an immigrant US	Validity and reliability of 7 items of past food insecurity tool	Focus group, structured interview	The tool is valid and reliable to measure the past food insecurity among Latino immigrants and white in US. Foreign born Latino mothers reported significantly greater levels of past food insecurity than US-born mothers.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		low-income Latino and white mothers of young children in the structured interviews		population.			
<b>Lee, Huang, Chen and Wahlqvist (2009)</b>	Taiwan	Taiwanese aged 4 and above	Mixed methods	To study the nutrition and health status of free-living people aged four or older in Taiwan.	Demographic variables, dietary intakes, life-style variables, medical history and medication usage.	Nutrition and Health Surveys in Taiwan (NAHSITs) between 1993 and 2008; face-to-face interviews	Dairy consumption practice is higher in school children, adolescents and elderly than in middle age. Average daily dairy intake decreases with age. Education, financial status, ethnicity, regional and health seeking behaviours are determinants of dairy consumption in all age groups. There is a need for alternative Food Guides for non-dairy consumers. Attention to dairy intake for socioeconomically disadvantaged groups is required.
<b>Liese, Weis, Pluto, Smith and Lawson (2007)</b>	The United States	Food stores in rural areas	Cross-sectional, quantitative	To characterise the built nutritional environment in terms of types and number of food stores, availability,	Price and availability of a limited number of staple foods representing the main food	Surveys	Availability of healthy foods was substantially higher at supermarkets and grocery stores. Foods that were available at both supermarkets and convenience stores tended to be substantially more expensive at convenience stores. The healthful version of a food was typically more expensive than



Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				and cost of selected food items in a rural area.	groups.		the less healthful version.
<b>Njomo (2013)</b>	South Africa	409 sub-Saharan immigrants	Qualitative	To examine the effects of grocery ethnic shops and restaurants on the food consumption behaviour of sub-Saharan African immigrants in South Africa.	Effects of the growth in ethnic grocery and restaurant entrepreneurship on the food consumption behaviour of sub-Saharan African immigrants in South Africa.	Semi-structured interviews	The ethnic food retail shops and restaurants have tremendous impacts on the consumption behaviour of sub-Saharan African immigrants in South Africa. They viewed indigenous foods as their cultural identity. The role of price, culture, quality, availability and variety impacted the food consumption behaviour and patterns of the immigrants.
<b>Nnakwe (2008)</b>	The United States	236 head of households	Qualitative	To determine the dietary patterns and prevalence of food insecurity in low-income families participating in community food assistance	The prevalence of food insecurity and the association between food insecurity and dietary intake	Interview	Households with children experienced higher food insecurity rate more than those without children. They used a variety of coping strategies to avoid hunger, including eating less varied diets; participating in federal food assistance programs; receiving emergency food from community-organised food pantries, emergency kitchens and shelters. Education levels also influence the food security level. In this study, those with lower

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				programs.			education level were more food secure. This is due to some of these families income is too high to receive government assistance but too low for them to obtain sufficient food. The last finding is the frequency of food consumption from the food groups decreased as the presence of food insecurity increased.
<b>Omidvar, Ghazi-Tabatabaie, Sadeghi, Mohammadi and Abbasi-Shavazi (2013)</b>	Tehran and Mashhad, Iran	310 adult females (155 in Tehran; 155 in Mashhad)	Quantitative	To examine the extent of food insecurity and it's correlated among Afghan immigrants in two metropolitan cities Tehran and Mashhad in 2010.	Household food insecurity	Face-to-face interviews using Household Food Insecurity Access Scale (HFIAS)	Food insecurity was significantly more prevalent in female-headed households, households whose head and spouse had lower education level, belonged to the Sunni sect, and those with illegal residential status, unemployment/low job status, not owning their house, low socioeconomic status (SES), and living in Mashhad.
<b>Palermo, Walker, Hill and McDonald (2008)</b>	Victoria, Australia	34 supermarkets in rural areas across Victoria	Quantitative	To investigate the factors that influence the cost of food in rural Victoria, Australia, compare the cost of nutritious foods with less healthy	Cost of Victorian Healthy Food Basket	Cross-sectional survey undertaken in 2007 based on Victorian Healthy Food Basket (VHFB)	The food cost in rural Victoria seems that not influenced by remoteness, population, socioeconomic status or distance from the metropolitan centre. However, the finding showed that vegetables and legumes were the most expensive component in VHFB compared others food group. It was more expensive to purchase VHFB at an independent store than a supermarket

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				foods, and to identify the population sub-groups most vulnerable to economic food insecurity.			chain. So, VHFB can be an effective tool for assessing economic food security for different population groups.
<b>Patil, Hadley and Nahayo (2009)</b>	The United States	157 Latino immigrants in survey, 40 individuals in interview (resettlement agency staff and caseworkers, community leaders and refugees)	Mixed methods	To stimulate research to improve understanding of the conflicting and interacting roles that play in shaping the health of refugees populations as they move to the USA.	Socio-demographic, socioeconomic status, employment, acculturation	Surveys, interviews	Food environments has changed the perceptions of refugees on diet and their diet change. Food availability, economic constraints, time constraints and children are four main factors in affecting their diet in US. Food available in US has changed African refugees' diet due to unavailability of their preference food. Even though there is their cultural food available, the high food cost affected them to change their diet to American food. On the other hand, new Americans may not have enough time to prepare food for themselves and families due to the working schedule. They rather to choose fast food to feed their families. While, in a family with children, the diets are more towards American foods because children have spent more time in schools and learn more new food in America.
<b>Pearson,</b>	Tasmania,	6,300	Qualitative	To inform and	Demographic,	Computer	The survey reported on Tasmanians' health and life

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Otahal and Venn (2009)</b>	Australia	Tasmanians aged 18 years and over		support planning, implementation and evaluation of health services and programs in Tasmania.	health and lifestyle	Assisted Telephone Interviews (CATI)	style, self-reported health and selected health conditions, overweight and obesity, asthma, diabetes, psychological stress and chronic disease. The results showed that less than half Tasmanians meet the requirement of having enough vegetables and fruits in their daily life.
<b>Peterman, Silka, Bermudez, Wilde and Rogers (2011)</b>	The United States	161 Cambodian refugees women	Mixed methods	To investigate how acculturation, education, exposure to nutrition information/education, and family composition are associated with specific dietary practices linked to health outcomes.	Demographic and dietary practices	Focus groups, surveys	Higher acculturation was related to higher likelihood of eating brown rice/whole grains, and to lower likelihood of eating high-sodium Asian sauces. Higher education was related to higher likelihood of eating vegetables and fruits and to eating white rice fewer times. Nutrition education and receiving dietary advice from a healthy care provider were related to higher likelihood of eating whole grains/brown rice. Having a child at home was related to a higher likelihood of eating fast food. Among Cambodian refugees who have been in the United States for 10 to 20 years, dietary practices appear to have a relationship with acculturation (positive association), the interrupted education common to refugees (negative association), nutrition education from either programs or health care providers (positive association) and having a child at home (negative association).

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Peterman, Wilde, Silka, Bermudez and Rogers (2013)</b>	The United States	Cambodian women (11 for focus groups & 160 for quantitative surveys)	Mixed methods	Describes food experiences on arrival in the U.S. and current food security status and examines characteristics related to food insecurity in a well-established refugee community.	Marital status, education level, acculturation, income, depression level, time of arrival in U.S.	Focus group, quantitative survey	Food insecurity was positively associated with being depressed and being widowed, and negatively associated with higher income and acculturation. The later arrivals of refugees have no difficulties in the U.S. food system but not for the early arrivals of refugees. It is recommended that refugee agencies should consider strategically devoting resources to ensure successful early transition to the U.S. food environment and long-term food security of refugees.
<b>Smith and Morton (2009)</b>	Minnesota and Iowa, United States	57 residents in rural Minnesota and Iowa	Focus group	To investigate how low-income rural residents living in food deserts access the normal food system and food safety net services within their communities, and explore how social, personal, and environment drives food access and food choice.	Food choice and food access among rural residents	Focus group	There are three factors influence food access and choice: personal and household determinants of food; social and cultural environment, and structure of place or the external environment. Personal, environmental and dietary behavioural factors are all interconnected in influencing dietary behaviour. However, the physical and social environments are still the one who impact dietary behaviour of rural people.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Smith et al. (2010)</b>	Scotland, UK	457 grocery stores located in 205 neighbourhoods in four environment settings (island, rural, small town and urban) in Scotland	Quantitative	To investigate how spatial accessibility to grocery stores selling fresh fruits and vegetables in four environmental settings in Scotland, UK.	Travel times to grocery stores; distribution of accessibility by neighbourhood deprivation in each of these four settings.	Geographical Information Systems, Healthy Eating Indicator Shopping Basket (HEISB) tool.	The most deprived neighbourhoods had the best access to grocery stores that selling fresh produce. The least deprived urban neighbourhoods compared with the most deprived have greater accessibility to grocery stores than their counterparts in island, rural and small town locations. Access to fresh produce is better in more deprived compared with less deprived urban and small town neighbourhoods, but poorest in the most affluent island communities with mixed results for rural settings.
<b>Spurrier, Volkmer, Abdallah and Chong (2012)</b>	South Australia	11,859 4-year-old children (337 aboriginal children)	Quantitative	To investigate the rates of overweight and obesity in Aboriginal children.	Weight status (underweight, healthy weight, overweight and obese) determined using age and gender specific International Obesity Task Force (IOTF) cut-points	Anthropometric data in 2009	Aboriginal children had significantly higher rates of overweight and obesity compared to non-Aboriginal children at the age of four. The residence and socioeconomic status influence the children's weight.
<b>Stevens</b>	The United	21 young	Exploratory	To explore the	Demographic,	Surveys (USFSS),	All participants focused on their children's food

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>(2010)</b>	States	mothers	study, mixed methods	experience of food insecurity of young mothers (15–24 years) and identify strategies used to manage food-insecure periods.	severity of food insecurity in the household during the 30 days	interviews	consumption. The four factors contributed to food insecurity in the families of young mothers were income, affordable food sources, housing and transportation.
<b>Thornton, Pearce and Ball (2014)</b>	UK and Victoria, Australia	Low-income women (643 in UK and 1340 in Australia)	Quantitative	To investigate the associations between socio-demographic factors and both diet indicators and food security among socio-economically disadvantaged populations in two different (national) contextual settings.	Associations between nationally, marital status, presence of children in the household, education, employment status and household income with daily fruit and vegetable consumption, low-fat milk consumption and food	2003-05 Low Income Diet and Nutrition Survey (LIDNS) from the UK and the 2007-08 Resilience for Eating and Activity Despite Inequality (READI) survey from Australia	The influence of nationality, marital status and children in the household on the dietary outcomes varied between the two nations. Obtaining greater education qualifications was the most telling factor associated with healthier dietary behaviours. Being employed was positively associated with low-fat milk consumption in both nations and with fruit consumption in the UK, while income was not associated with dietary behaviours in either nation. In Australia, the likelihood of being food secure was higher among those who were born outside Australia, married, employed or had a greater income, while higher income was the only significant factor in the UK.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
security							
<b>Tsang, Ndung'U, Coveney and O'Dwyer (2007)</b>	Adelaide, Australia	Five local government areas (LGAs) in metropolitan Adelaide	Cross-sectional, quantitative	To assess and compare the cost, availability and affordability of a standardised healthy food basket (HFB) in five local government areas (LGAs) in metropolitan Adelaide.	Socioeconomic status, prices of food items, cost of the Adelaide Healthy Food Basket (HFB)	Survey	The cost of healthy food basket (HFB) was lower in low-SES suburbs. Items in the HFB were found in most supermarkets surveyed; therefore, availability of healthy food at this geographical level is not a concern. However, the study highlighted the proportionately high costs of a healthy diet for families on welfare or on a single income based on average weekly earnings (AWE), which needs to be considered in programs encouraging healthy food choices.
<b>Vahabi, Damba, Rocha and Montoya (2011)</b>	Toronto, Canada	70 adult Latin American immigrants	Mixed methods	Examines the extent of food insecurity and its correlates among recent Latin American immigrants in Toronto.	Socio-demographic, self-reported health characteristic, food access and dietary intake	Questionnaire, face-to-face interviews	High rate of food insecurity among participants. Household food insecurity was highly influenced by social assistance, limited English proficiency, and the use of food bank. The primary correlate of a household's food security status is income. It is suggested that policies and strategies to improve the financial power of new immigrants to purchase sufficient, nutritious and culturally acceptable food should be implemented. More subsidized on English language and housing programs should be provided too.
<b>Vahabi and</b>	Toronto,	70 adult	Cross-	To explore the	Socio-	Face-to-face	Four main categories of barriers were identified



Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Damba (2013)</b>	Canada	Spanish/Portuguese speakers who had arrived in Toronto within the last five years	sectional mixed-method	recent Latin American (LA) immigrants' perceived barriers in acquiring safe, nutritious, and culturally-appropriate food.	demographic, food security status	interviews, questionnaire	limited financial resources, language difficulty, cultural food preferences, and poor knowledge of available community-based food resources and services.
<b>Ward et al. (2013)</b>	Adelaide, South Australia	61 supermarkets, 27 greengrocers and 34 butchers	Cross-sectional survey	To investigate the affordability of a Healthy Food Basket (HFB) in metropolitan Adelaide.	Food prices, cost of weekly healthy food for a range of family types	Healthy Food Basket Survey	Low-income families would have to spend approximately 30% of household income on eating healthily, whereas high-income households needed only 10%. The differential is explained by the cost of the food basket relative to household income (i.e., affordability). It is argued that families that spend more than 30% of household income on food could be experiencing "food stress". Moreover, the high cost of healthy foods leaves low-income households vulnerable to diet-related health problems because they often have to rely on cheaper foods which are high in fat, sugar and salt.
<b>Wong et al. (2011)</b>	Adelaide, South Australia	61 supermarkets, 27 greengrocers	Cross-sectional survey	To investigate the cost, affordability, availability and quality of a healthy	Food prices, households' income, cost of healthy food	Survey	Low-income families were significantly worse off in comparison with high-income families ( $P < 0.05$ ) regarding affordability of the healthy food basket. Families on welfare payments and low incomes

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		and 34 butchers		food basket in high and low household income areas of Adelaide, and to investigate food promotion in supermarkets.	basket, affordability of the healthy food basket		would need to spend 28–34% of their income in order to be able to afford a healthy food basket. However, there was no significant difference in the cost, availability, and quality of the healthy food basket and food promotions between high and low household income areas.
<b>THEME 3: STRATEGIES IN FOOD SECURITY</b>							
Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Akerele, Momo, Aromolaran, Oguntona and Shittu (2013)</b>	Nigeria	80 households (321 members)	Quantitative	Seeks to evaluate the incidence, depth and severity of household food insecurity by determining household socioeconomic factors and coping strategies.	Food insecurity level, household size, income, education level	Questionnaire	Household food insecurity in south-western part of Nigeria was in mild severity. The level of food insecurity declined with higher levels of income and educational levels but increased with household size. Incidence of food insecurity was slightly higher among female headed than male headed households but the depth and severity were lower. The three most common coping strategies for combating short-term food shortages were eating less expensive and less preferred food and reducing portion sizes. Policies to enhance income earning capacity of household members and their access to higher education, well-focused gender specific interventions

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
							and promotion of backyard farming are supported.
<b>Bathum and Baumann (2007)</b>	The United States	10 Latinas migrants	Qualitative	Uses a focused ethnography to explore a sense of community from the perspective of immigrant Latinas.	Countries of origin, age groups, lengths of time living in the US	Individual interviews	Four processes were identified from these data: the immigrant Latina learning to trust the new community's influence on health and health-promoting activities. Working to develop or strengthen a sense of community may help eliminate ethnic and racial health disparities in vulnerable populations.
<b>Carney et al. (2012)</b>	The United States	38 families (pre-garden period), 42 families (post-garden period)	Community-based participatory, mixed methods	To examine impact of a community gardening project on vegetable intake, food security and family relationships.	Demographic and family size information, impact of community gardening project on a family	Survey, interviews, observation	The advantages of community gardening are both physical and mental health benefits as well as economic and family health benefits, primarily because the families often worked in their gardens together. A community gardening program can reduce food insecurity, improve dietary intake and strengthen family relationships.
<b>De Marco, Thorburn and Kue (2009)</b>	Oregon, the United States	25 low-income and/or food-insecure Oregonians	Qualitative	To explore their experiences with food insecurity, the role of social support, and whether these experiences differed based on	Experiences of food-insecure Oregonians, comparison between rural and urban food-insecure participants	Interviews	Ill health and unemployment emerged as food insecurity contributors. Coping strategies included the use of nutrition assistance programs, alternate food sources, and social support. The findings suggest that policy and practice efforts should be directed at increasing the human capital of low-income Oregonians and the benefit levels of essential nutrition assistance programs.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				rural/urban residence.			
<b>Engler-Stringer and Berenbaum (2006)</b>	Canada	Collective kitchens (CKs)	Qualitative	To determine what food and nutrition-related learning takes place in collective kitchens (CKs) in three Canadian cities	Food-related behaviour (including shopping, food preparation and others)	Semi-participant observation, in-depth interviews	CKs were perceived as an important source of food-related knowledge and skills. Some behaviour changes that resulted from participation were an increased variety of foods in the diet, increased vegetable consumption, and decreased fat consumption.
<b>Engler-Stringer and Berenbaum (2007)</b>	Canada	Collective kitchen (CK) participants	Qualitative	To explore the changes of participants' perceptions on food security since becoming involved in a collective kitchen.	Food security level	Semi-participant observation, in-depth interviews	Participants that cooked large quantities of food reported increases in their food resources. They also reported increased dignity associated with not having to access charitable resources to feed their families. Some participants reported food insecurity decreased with lower psychological distress. However, collective kitchens are only a short-term solution to the income-related food insecurity.
<b>Fieldhouse and Thompson (2012)</b>	Canada	International literature and Canadian research and practice	Review article	Reviews food security issues as they pertain to indigenous communities, particularly in northern	Strategies in tackling food security issues in indigenous communities in Canada	Narrative review	Community-based action combined with structural changes and a supportive policy environment offered the chance to change the conditions of food access indirectly and achieve a healthy living and prevent chronic disease.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				Manitoba, and describes community and government approaches to tackling food insecurity.			
<b>Firth, Maye and Pearson (2011)</b>	Nottingham, UK	Two community gardens	Case study	To explore the relationships within community gardens and the interaction and networks each garden has with people in the local community, other organisations and institutions.	The contribution of community gardens for the local communities	Semi-structured interviews	The two community gardens have been proven to develop three types of social capital: bonding social capital, bridging social capital and linking social capital. There are four main ways in which community gardens generate social capital. First, community garden brings people together with a common purpose to participate in a joint activity or venture; second, it creates a meeting place where people can gather and interact to contribute to the creation of community; third, bridging social capital generated as people of all ages, ethnicities and socioeconomic backgrounds engaged in one place; fourth, the building of the link with institutions and authorities can be formed through community gardens.
<b>Foley, Spurr, Lenoy, De</b>	Australia	Adults	Reflection	Presents views about the value of	Experience facilitates a	Reflections on experience	Cooking skills were essential to promote healthy cooking and eating among urban community groups.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Jong and Fichera (2011)</b>		Aboriginal		cooking skills in the work of nutrition professionals and students working in an urban Indigenous health service.	series of practical cooking workshops in adult Aboriginal and Torres Strait Islander groups; the importance of cooking skills for professionals promoting nutrition in community contexts.	facilitating a series of practical cooking workshops in adult Aboriginal and Torres Strait Islander groups	It made an important contribution to promoting nutrition in urban Aboriginal context. It also a kind of way to deliver new cooking ideas, new recipes and some unfamiliar ingredients as well as new cooking skills.
<b>Gallaher, Kerr, Njenga, Karanja and WinklerPrins (2013)</b>	Kibera slums of Nairobi, Kenya	31 farmers (interviews), 306 households (surveys)	Mixed-methods	Examines relationships among sack gardening, social capital and food security in Kibera.	The relationships among sack gardening, social capital and food security	Qualitative interviews, survey, focus group	Sack gardening increases social capital. It also has a positive impact on household food security by improving household dietary and by reducing the need to resort to painful coping mechanisms that are used during food shortages such as reducing portion sizes or skipping meals.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>Goto, Ominami, Song, Murayama and Wolff (2014)</b>	Japan	15 Japanese mothers of preschool-age children	Qualitative	Examines parental perceptions of sociocultural factors associated with healthy child feeding practices among parents of preschool-age children in rural Japan.	Parental perceptions of healthy child feeding practices and their relationships with globalisation and localisation	Semi-structured interviews	Children were expected to be mindful and show good table manners that reflect cultural values related to meal-time socialising or family bonding, and food appreciation. On the other hand, strong social capital, especially social support from their mothers or mothers-in-law, as well as social networks for obtaining fresh local foods, contributed to healthy child feeding practices. Cultural capital (including the preservation of traditional Japanese dietary habits, eating rules and inter-generational commensality), was also identified as being key to healthy feeding practices.
<b>Gray, Guzman, Glowa and Drevno (2014)</b>	San Jose, California, La Mesa Verde (LMV)	57 families (evaluation survey) and 38 (qualitative survey)	Multivalent	To examine a home-gardening programme in San Jose, California, La Mesa Verde, asking whether some of the benefits found in community gardens can be found in home gardens.	Vegetable consumption, financial savings and physical activity	Participant observation, interviews, focus groups, surveys	It was shown that home gardens are source of food, saving and health to the participants who joined the programme. The participants had changed their eating habits and positively increased their physical activity through gardening. Besides, home gardening had also contributed to community connections, social capital and cultural identity.
<b>Heinrich et al.</b>	Hawaii	86 low-income Hawaii	Qualitative	To examine food security for low-	The use of Food Stamp	Focus group	The FSP assistance was not enough for the low-income residents in Hawaii due to the high living

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
<b>(2008)</b>		residents		income Hawaii residents.	Program (FSP), others coping alternatives		cost. They do have alternatives in food resources including food banks, churches, friends and family members. Besides, shopping strategies such as budgeting, buying in bulk or smarter shopping practices was employed as food security strategies.
<b>Iacovou, Pattieson, Truby and Palermo (2013)</b>	Worldwide	Participants of community kitchens across the world	Systematic review of the literature	To investigate whether community kitchens can improve the social nutritional health of participants and their families.	Types of studies related to community kitchens	Systematic review	Ten studies were selected for inclusion. Community kitchens may also play a role in improving participants' budgeting skills and address some concerns on food insecurity. Long term solutions are required to address income-related food insecurity.
<b>Kortright (2011)</b>	Toronto, Canada	23 gardeners in two contrasting neighbourhood	Qualitative	To explore assessment of the contribution home food gardening makes to community food security.	Demographic, information of participants' garden, garden with food security	In-depth interviews	It was found that growing food contributes to food security at all income levels by encouraging a more nutritious diet. The sustainability of household food sourcing also increased with food production. Secure access to suitable land for food growing and gardening skills were the most significant barriers found to residential food production.
<b>Lee, McCartan, Palermo and Bryce (2010)</b>	Victoria, Australia	63 participants, 20 facilitators and 10 project	Mixed methods	To conduct a process evaluation of 17 Community Kitchens in the	Evaluation on Community Kitchens	Survey, focus group, structured telephone	Community Kitchens reached population sub-groups that face the greatest health inequalities. Enablers and barriers to setting up and sustaining a community kitchen were identified. The themes that



Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
		partners from 17 Community Kitchens		LGAs of Frankston City and Mornington Peninsula Shire.		interview	emerged from participants' and facilitators' experience of participation concerned food and cooking skills and community participation.
<b>Markow, Coveney and Booth (2014)</b>	South Australia	24 low-income South Australians	Qualitative	Examines the enablers and barriers to using community-based food systems (CFs) and potential strategies to improve them.	Perceptions on CFs, strategies to improve CFs	Focus group	Participants believed that CFs must improve their affordability and convenience and provide more information to enhance access by low-SES groups. Participant-generated strategies addressed each of these issues. CFs will likely require a series of strategies to attract low-SES patrons; however, these must be consistent with other goals aggregate to CFs to ensure their sustainability.
<b>Mhurchu and Gorton (2007)</b>	New Zealand and Australia	16 papers for review	Review article	Determines how well consumers use and understand nutrition labels and claims in New Zealand and Australia.	The use of nutrition labels	Review on selected papers	Nutrition labels give a chance to improve consumer food choice during food purchasing. Their understanding on nutrition labels can be used to promote healthier food choices.
<b>Palermo and Wilson (2007)</b>	Victoria, Australia	Victorian Healthy Food Basket	Review paper	The release of the revised Nutrient Reference Values, together with local	Demographic and food purchasing	Development of healthy food basket	The Victorian Healthy Food Basket (VHFB) provides an additional tool to monitor the cost and access to healthy food in Victoria.

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				interest in food security, highlighted the need to develop a Victorian Healthy Food Basket to reflect the food access issues of the Victorian population.	data		
<b>Porter and McIlvaine-Newsad (2013)</b>	The United States	Gardeners in community garden	Ethnography	To examine community garden in the context of environmental justice in a rural setting.	The origins and growth of community garden in the context of food security, leisure and social capital	Participant observation, focus groups, face-to-face interviews	Participants who participated in the gardening were mainly for food security, but soon realised leisure benefits such as socialising and meeting new people. Furthermore, the external social networks that facilitated the gardens resulted in the creation of internal social capital, including increased gardening knowledge and shared ability.
<b>Schmied, Parada, Horton, Madanat and Ayala (2014)</b>	The United States	361 Latino mothers	Qualitative	Examines psychosocial correlates of behavioural strategies for healthy eating	Socio-demographics, acculturation, and psychosocial determinant	Structured interview	Family interactions regarding dietary habits and financial status were associated with the use of strategies to decrease fat consumption. The use of strategies to increase fibre consumption were associated with positive family interactions regarding dietary habits, fewer barriers to obtaining fruits and

Author	Location	Sample	Research design	Aim/purpose of the study	Outcomes/ measures identified	Instrument used	Study findings
				among Latinas.	of healthy eating		vegetables, and more family support for vegetable purchasing.
<b>White (2011)</b>	Detroit	Participants involved in Detroit Black Community Food Security Network (DBCFSN)	Case study	To analyses community building and political agency.	Benefits of farming as a strategy in DBCFSN to combat food insecurity.	Interviews	The use of farm has made DBCFSN not only meets citizens' needs for fresh produce but also builds community by transforming the social, economic, and physical environment. The farm is treated as a community centre; as a means to articulate culturally relevant language about healthy food and healthy lifestyles, and as a tangible model of collective work, self-reliance and political agency.
<b>White and Signal (2012)</b>	Australia and New Zealand	Final submissions to the review and a literature review of documents reporting research evidence about traffic light labelling	Content analysis	Examines the use of research evidence about traffic light nutrition labelling in submissions to the Review of Food Labelling Law and Policy conducted in Australia and New Zealand.	Implications for the development of front-of-pack nutrition labelling	Content analysis of final submissions to the review and a literature review of documents reporting traffic light labelling	62 submitters to the Review supported that traffic light labelling was better action in helping consumers identify healthier food options. While 29 opponents opposed that there was a lack of evidence that traffic light food labels led to changes in food consumption. Overall, the traffic light labelling has strengths in helping consumers to identify healthier food options.

## Appendix 5      Timeline of data collection and analysis process

ACTIVITY	START	COMPLETE	% COMPLETE	2012 Jun	2012 Jul	2012 Aug	2012 Sep	2012 Oct	2012 Nov	2012 Dec	2013 Jan	2013 Feb	2013 Mar	2013 Apr	2013 May	2013 Jun	2013 Jul	2013 Aug	2013 Sep	2013 Oct	2013 Nov	2013 Dec	2014 Jan	2014 Feb	2014 Mar
Ethics approval	26/06/2012	15/03/2013	100%																						
Questionnaire data collection	16/03/2013	30/11/2013	100%																						
Interview data collection	1/04/2013	31/08/2013	100%																						
Questionnaire data analysis	1/12/2013	28/02/2014	100%																						
Interview data analysis	1/09/2013	31/12/2013	100%																						

Plan
  Actual
  Actual (Beyond plan)

# Appendix 6 Questionnaire

## Food Security and Cultural Identity of Migrants in Tasmania

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Please try to return this questionnaire within 7 days  
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This questionnaire comprises Part A, B, C, D and E. It should take only 10 – 15 minutes to complete. Please tick (✓) the box that reflects your opinion for each of the following items.

### Part A: About you

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1. Gender:

☐ Male

☐ Female

2. Age:

☐ 18 – 24

☐ 25 – 34

☐ 35 – 44

☐ 45 – 54

☐ 55 – 64

☐ 65 and over

3. I am from:

☐ Asia (Other than Middle East)

☐ Middle East (e.g. Iran, Turkey and United Arab Emirates)

☐ Europe

☐ North America

☐ South America

☐ Africa

☐ Others, please specify:

.....

4. What is the main language you speak at home:

.....

5. English proficiency:

☐ Excellent

☐ Good

☐ Fine

☐ Poor

☐ Very poor

(If you rate your English proficiency as “poor” or “very poor”, you should not continue with this questionnaire.)

6. Marital status:

- ☐ Single (never married)
- ☐ Married / de facto
- ☐ Divorced / separated
- ☐ Widowed

7. Number of people in your household including you:

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more

8. Which town or area do you live in?

.....

9. Length of stay in Tasmania (up to now):

- ☐ Less than 1 year
- ☐ 1 - 2 years
- ☐ Over 2 - 3 years
- ☐ Over 3 years

10. Highest level of education:

- ☐ No formal education
- ☐ Completed primary school
- ☐ Completed secondary school
- ☐ Some training (TAFE courses etc.)
- ☐ University qualification

11. Employment status:

- ☐ Full time job
- ☐ Part time job
- ☐ Casual job
- ☐ Unemployed, looking for job
- ☐ Permanently unable to work
- ☐ Self-employed
- ☐ Other, please specify:

.....

12. Family/personal income per week:

- ☐ Less than \$100
- ☐ \$100 - \$299
- ☐ \$300 - \$499
- ☐ \$500 - \$699

- ☐ \$700 - \$899  
☐ \$900 or over  
☐ I do not wish to answer this question
13. Mode of transport (Tick more than one if applicable)
- ☐ I use public transport (e.g. bus)  
☐ I walk  
☐ My own transport (e.g. car, bicycle, etc.)  
☐ Other, please specify:  
 .....
14. How much do you generally spend on food each week?
- ☐ Less than \$1  
☐ \$1 - \$50  
☐ \$51 - \$100  
☐ \$101 - \$200  
☐ \$201 or more
15. How would you rate your general health status?
- ☐ Excellent  
☐ Good  
☐ Reasonable  
☐ Poor  
☐ Very poor

## Part B: Your experiences of food security in Tasmania

---

16. Have you ever experienced any situation where you have had no food in Tasmania?
- ☐ Yes  
☐ No, **go to Question 18**
17. If answer "Yes" to question 16, please specify the reasons:  
(Tick more than one if applicable)
- ☐ Not enough money to buy food  
☐ Food is too expensive in the local shops  
☐ It is too far to get to the shops  
☐ Other, please specify:  
 .....
18. How much do you know about the food in Tasmania?
- ☐ Everything  
☐ A lot  
☐ A fair amount  
☐ A little  
☐ Nothing at all
19. Do you have sufficient choice where to go to buy food?

- ☐ Yes  
☐ No, please provide more information:  
.....

20. Where do you normally buy your food? (Tick more than one if applicable)

- ☐ Local food outlets (e.g., Green grocer)  
☐ Supermarkets  
☐ Cultural food outlets (e.g., Asian grocer)  
☐ Other, please specify:  
.....

21. How adequate is the food sources (from local food outlets, supermarket etc.) in your area?

- ☐ Very adequate  
☐ Adequate  
☐ Neither adequate nor inadequate  
☐ Inadequate  
☐ Very inadequate

22. How often do you shop for any of your food?

- ☐ Never  
☐ Monthly  
☐ Weekly  
☐ Fortnightly  
☐ Other, please specify:  
.....

23. Are there many food choices in Tasmania for you to choose from?

- ☐ Yes  
☐ No. If so, what is the reason:  
.....

24. Do the food choices in Tasmania fulfil your needs?

- ☐ Yes  
☐ No. If so, please list the reasons:  
.....

25. Do you find it easy to get the food ingredients to prepare traditional dishes from your home country?

- ☐ Yes  
☐ No. If so, please list the reasons:  
.....

26. Do you often travel far to buy food you need?

- ☐ Yes  
☐ No, **go to Question 29**

27. How far do you normally travel to buy your food?



- ☐ Less than 1 km
- ☐ 1 – 2 km
- ☐ Over 2 – 3 km
- ☐ Over 3 – 4 km
- ☐ Over 4 km

28. What mode of transportation do you normally use to travel to buy your food?

- ☐ Private car
- ☐ Motorbike
- ☐ Bicycle
- ☐ Public transport (e.g. bus)
- ☐ Walking
- ☐ Other, please specify:

.....

29. How would you rate the price of food you normally buy?

- ☐ Too expensive
- ☐ Expensive
- ☐ Reasonable
- ☐ Cheap
- ☐ Very cheap

30. How satisfied are you with the current price of food? Please tick (✓) ONE box.

- |                          |                          |  |                          |                          |
|--------------------------|--------------------------|--|--------------------------|--------------------------|
| Very<br>satisfied        | Somewhat<br>satisfied    | Neither<br>satisfied nor<br>dissatisfied | Somewhat<br>dissatisfied | Very<br>dissatisfied     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                 | <input type="checkbox"/> | <input type="checkbox"/> |

31. Have you found it difficult to change your eating habits in Tasmania?

- ☐ Yes. If so, what is the reason?

.....

- ☐ No

32. How often do you eat the following groups of food? Please tick (✓) ONE box for each group.

- |   | Daily                    | 2-3 times<br>per week    | Weekly                   | Less<br>often            | Never                    |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Fruit, vegetables (tinned, fresh or dried) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Meat, chicken, fish                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Eggs, milk, cheese, yogurt                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Bread, cereals, grains                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- |                  |                          |                          |                          |                          |                          |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| e. Takeaway food | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Nut, legume*  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

\* Legumes include dried or canned beans, lentils and peas.

33. How often do you eat homemade\* food?

- ☐ All three meals a day  
☐ At least once a day  
☐ 5 – 6 times a week  
☐ 3 – 4 times a week  
☐ 1 – 2 times a week  
☐ Less than once a week

\* Homemade food is defined as food that is cooked at home and is not made outside the home such as at a restaurant or a take away shop.

34. Regarding the food you have eaten in the last 12 months, which of the following statements is true? (Tick more than one if applicable)

- ☐ Healthy and balanced food  
☐ Enough, but not always the types of food I want  
☐ Traditional food of my country of origin  
☐ Sometimes not enough food to eat  
☐ Other, please specify:

.....

35. Do you feel you get good nutrition\* from the food you eat?

- ☐ Yes  
☐ Not sure  
☐ No

\* Nutritious food include basic or staple foods such as breads, cereals, grains, rice, fruits, vegetables, legumes (kidney beans, lentils, etc.), nuts, red meat, fish, chicken, eggs, milk, yogurt and cheese.

## Part C: Your views on food security in Tasmania

Please tick (✓) the box that best describes your views.

- |   | Strongly agree           | Agree                    | Undecided                | Disagree                 | Strongly disagree        |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 36. More food choices should be provided in local food outlets.               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. More fruit and vegetables should be made available in local food outlets. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	<b>Strongly agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
38. There should be more local food stores.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. There should be more traditional food choices for people from different countries/cultures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Prices of food in local food outlets should be lowered/lower.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. How far are you willing to travel to get the food you need?					
41a. Walking					
<input type="checkbox"/>	Not willing to walk/I have physical limitations				
<input type="checkbox"/>	Less than 15 minutes				
<input type="checkbox"/>	15 – 30 minutes				
<input type="checkbox"/>	31 – 60 minutes				
<input type="checkbox"/>	More than 60 minutes				
41b. Driving					
<input type="checkbox"/>	Not willing to drive/can't drive				
<input type="checkbox"/>	Less than 15 minutes				
<input type="checkbox"/>	15 – 30 minutes				
<input type="checkbox"/>	31 – 60 minutes				
<input type="checkbox"/>	More than 60 minutes				
42. To what extent are the following factors likely to influence your food security (getting healthy food) in Tasmania? Please tick (✓) ONE box for each factor.					
	<b>Very important</b>	<b>Important</b>	<b>Neutral</b>	<b>Not very important</b>	<b>Unimportant</b>
a. Own transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Accessibility of public transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Food nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Cultural background	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Knowledge or skills (e.g., information on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Very important	Important	Neutral	Not very important	Unimportant
the food available in Tasmania, ways to get food, etc.)					
f. Social support (e.g., friends, communities, neighbours etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Part D: Your attitudes on coping strategies

---

43. Where do you usually get food ingredients that you cannot buy from shops?

(Tick more than one if applicable)

- ☐ Replace with other ingredients
- ☐ Grow the food ingredients yourself
- ☐ Exchange with friends or neighbours
- ☐ Gifts from friends or neighbours
- ☐ I go without
- ☐ Other, please specify:

.....

44. Where do you normally get support to improve your access to food in Tasmania?

(Tick more than one if applicable)

- ☐ Institutions or government related sector (e.g., Migrant Resource Centres, cultural societies/organisations, etc.)
- ☐ Community (e.g. Neighbours and people in your residential areas)
- ☐ Friends
- ☐ Family and relatives
- ☐ Other, please specify:

.....

45. Do you receive any assistance to adapt to the food practices in Tasmania?

- ☐ Yes
- ☐ No, **go to Question 49**

46. What kind of assistance do you get? (Tick more than one if applicable)

- ☐ Advice or consultation from institutions, community, friends, partners etc.
- ☐ Informative sessions on food practice in Tasmania (e.g., cooking classes, seminars, workshops, etc.)

☐ Other, please specify:  
.....

47. Did this assistance help?

☐ Yes

☐ No. If so, please list the reasons:  
.....

48. How would you rate the assistance you receive?

☐ Excellent

☐ Good

☐ Fine

☐ Poor

☐ Very poor

### **Part E: Your own comments**

---

49. Any suggestions on how to improve access to healthy food in Tasmania?

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

If you would be available to participate in a 30-40 minutes follow up interview,  
please let us know:

Name: .....

Email: .....

Phone: .....

**Thank you for your time.**

**Your participation to this questionnaire is highly appreciated.**

## PRIZE DRAW

Every person who fills out this questionnaire will go into the draw to win one of three Coles gift card valued at \$50 each. To enter, simply fill in this page and place it in the confidential envelope provided and mail to us by 31/10/2013.

Full name: .....

Address: .....

Best contact number: .....

Email address: .....

## Appendix 7 Interview guide

**Project title: Food Security and Cultural Identity of Migrants in Tasmania**

5. What does food security mean to you?
6. How would you describe your food habits in Australia?
7. Do you find any differences between the food culture in Australia and that in your home country? If so, please share and give some examples based on your experiences.
8. Have you experienced any difficulties in buying or obtaining food that is considered healthy in your culture in Tasmania? If so, please give details and examples.
9. Do you find it difficult to change or adapt to the food culture in Australia? If so, please share.
10. Do you find other people give you advice or help about eating healthy food? Please give a couple of examples.
11. What would you do if you have problems about finding healthy food?
12. Would you like to make any other comments or suggestions about food security in Australia?

## Appendix 8      Sample of the results for normality test

	No.	Skewness	Kurtosis
Q21 (Adequacy of food sources)	301	0.734	0.874
Q30 (Satisfaction level on current food price)	301	0.070	-0.517
Q37 (View on availability of vegetables and fruits in local food outlets)	301	-1.276	1.835
Q42c (The important level of food nutrition as factor that influence food security)	301	-0.852	1.166
Q44 (Family and relatives as support to improve food access in Tasmania)	301	-0.502	-1.759



## Appendix 9 Chi-square test data tables

**Table A: Chi-square test of the relationship between gender, length of stay in Tasmania, English language proficiency level and region of origin on experiences of food security**

Chi-square test		Gender	
Total sample (N=301)	$\chi^2$	df	p-value
Food knowledge in Tasmania	10.172	2	0.006
Chi-square test		Length of stay in Tasmania	
Total sample (N=301)	$\chi^2$	df	p-value
Food knowledge in Tasmania	26.057	6	0.000
Chi-square test		English language proficiency level	
Food knowledge in Tasmania	18.184	4	0.001
Chi-square test		Region of origin	
Total sample (N=301)	$\chi^2$	df	p-value
Satisfaction with current food price	6.469	2	0.039
Frequency of bread, cereal and grain consumption	12.251	4	0.016

**Table B: Chi-square test of the relationship between region of origin, marital status and educational level on views on food security in Tasmania**

Chi-square test		Region of origin	
Total sample (N=301)	$\chi^2$	df	p-value
Increasing food choices in local food outlets	20.470	2	0.000
Increasing traditional food choices for people from different countries/cultures	8.409	2	0.015
Chi-square test		Marital status	
Total sample (N=301)	$\chi^2$	df	p-value
Increasing food choices in local food outlets	22.997	6	0.001

Chi-square test		Educational level	
Total sample (N=301)	$\chi^2$	df	p-value
Lowering the food prices in local food outlets	12.328	4	0.015

**Table C: Chi-square test of the relationship between English language proficiency level and region of origin on factors influencing migrants' food security**

Chi-square test		English language proficiency level	
Total sample (N=301)	$\chi^2$	df	p-value
Access to public transport	14.300	4	0.006
Cultural background	19.785	4	0.001

Chi-square test		Region of origin	
Total sample (N=301)	$\chi^2$	df	p-value
Cultural background	15.711	2	0.000

# Appendix 10 Thematic coding tree

Name	Sources	References	Created By	Created On
Acculturation strategies	25	52	SWJYEOH	6/06/2013 11:41 AM
Access from home country or other places	18	32	SWJYEOH	11/06/2013 12:31 PM
Accessing technology and social media	7	13	SWJYEOH	7/06/2013 3:51 PM
Adjusting or adapting	18	30	SWJYEOH	30/08/2013 2:33 PM
Equip with food related knowledge	8	9	SWJYEOH	29/08/2013 12:30 PM
Getting supports from social network	25	37	SWJYEOH	29/08/2013 12:29 PM
Home gardening	9	14	SWJYEOH	19/06/2013 3:18 PM
No strategy	2	2	SWJYEOH	30/08/2013 12:20 PM
Experiences with the food security in Tasmania	31	224	SWJYEOH	29/08/2013 5:16 PM
Food accessibility	17	27	SWJYEOH	6/06/2013 11:40 AM
Food affordability	18	29	SWJYEOH	6/06/2013 11:40 AM
Food availability	23	52	SWJYEOH	6/06/2013 11:39 AM
Food habits	8	15	SWJYEOH	6/06/2013 2:02 PM
Food purchasing	24	62	SWJYEOH	7/06/2013 3:41 PM
Factors that influence migrant's food security in Tasmania	31	157	SWJYEOH	7/06/2013 3:55 PM
Cultural background	13	17	SWJYEOH	5/07/2013 3:13 PM
Educational background	8	11	SWJYEOH	12/06/2013 3:12 PM
Exposure and familiarity	14	22	SWJYEOH	10/07/2013 1:02 PM
Geographical isolation	0	0	SWJYEOH	14/10/2013 4:58 PM
Household size	4	7	SWJYEOH	5/07/2013 3:17 PM
Income	7	9	SWJYEOH	9/07/2013 3:07 PM
Individual food preference	5	6	SWJYEOH	9/07/2013 3:08 PM
Language barrier	9	12	SWJYEOH	17/10/2013 12:52 PM
Length of stay in Tasmania	30	44	SWJYEOH	7/06/2013 3:31 PM
Perceptions and attitudes towards food security	0	0	SWJYEOH	29/04/2014 9:49 AM
Adaptation to the food culture in Tasmania	27	50	SWJYEOH	6/06/2013 2:16 PM
Significance of the food security in Tasmania	13	26	SWJYEOH	12/06/2013 3:15 PM
Understanding of food security	29	35	SWJYEOH	6/06/2013 11:41 AM
Suggestions and recommendations to improve food security in Tasmania	17	19	SWJYEOH	12/06/2013 3:17 PM
Awareness on new food culture	4	10	SWJYEOH	22/08/2013 4:50 PM
Education on food and nutrition	1	1	SWJYEOH	22/10/2013 10:45 AM
Food process	4	6	SWJYEOH	22/10/2013 10:48 AM
Improving transportation access	2	6	SWJYEOH	28/10/2013 11:46 AM
Increasing the availability of cultural food, fresh food and local food product	2	9	SWJYEOH	28/10/2013 11:45 AM
Preservation on land for agriculture	1	1	SWJYEOH	22/08/2013 4:44 PM
Promoting community kitchens	1	1	SWJYEOH	22/10/2013 4:57 PM